PERINATAL PREDICTORS OF

EARLY CHILD ABUSE AND NEGLECT

Predicting Abuse and Neglect in the First Two Years of Life

From Risk Assessments during the Prenatal and Perinatal Period

by

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Acknowledgments

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Abstract

A prospective study was conducted to determine if the risk assessments used in the Medi-Cal funded Comprehensive Perinatal Services Program for low-income pregnant women can identify infants who are abused or neglected during their first two years of life. Birth records for 839 infants born between June 1, 1998 and May 30, 1999 to mothers who received Medi-Cal funded prenatal care were matched against the California child abuse and neglect reporting system. Prenatal or delivery records for 637 infants were examined for selected indicators assessed during pregnancy. Multivariate logistic regression analyses were used to identify predictors of child maltreatment. Separate analyses were done to differentiate between risk factors associated with child neglect and child abuse.

Fifty-five (6.6%) infants were abused or neglected within the first two years of life. The majority (73%) were neglected, 22% were abused and 5% were both abused and neglected. Mothers of abused/neglected infants reported on average 11 risk factors, double the number reported by mothers of infants with no report of child maltreatment. Risk factors associated with child abuse or neglect include having a previous child living out of the home, parental substance use, family violence, financial and housing problems, maternal mental health and learning disabilities and parental history of incarceration.

The sensitivity of the models for correctly categorizing abused or neglected infants ranged from 74-79% and specificity for correctly categorizing infants with no report of maltreatment ranged from 75-82%. Identifying families with multiple risk factors during the prenatal and perinatal period provides the opportunity to link families to services that may ameliorate risks and reduce the likelihood of early child abuse or neglect. These findings may be generalized to infants born to low-income families in California.

Chapter I. Introduction

Nearly 400,000 children were reported as having been abused or neglected in California in 1999, a state with 8.9 million children under age 18 (U.S. Department of Health & Human Services, Administration on Children, Youth and Families, 2000). Over one-third of the children in California who are removed from the home for abuse or neglect are the very young children under age two (Needell, Webster, Barth, Armijo & Fox, 1997).

Although there is no universal assessment of infants who may be at heightened risk for abuse or neglect, the statewide Medi-Cal perinatal health program for low-income women in California requires all participating providers to conduct a comprehensive assessment of psychosocial and environmental risk factors that may adversely affect the health of the newborn. The purpose of this study is to determine if the risk assessment process used in the prenatal program for low-income women can be used to identify families at risk for child maltreatment. A primary aim of this present study is to increase the understanding of child maltreatment by examining characteristics in the prenatal period that are correlated with child abuse and neglect during the first two years of life. The goal is to direct prevention efforts to families who are identified to be at greater risk for child abuse and neglect in order to intervene at the earliest time possible.

History Of Laws Protecting Children From Abuse

In 1909 the first White House Conference on Children was convened and four years later the United States Children's Bureau was funded to promote the health, welfare, growth and development of children. It was not until the Social Security Act of 1935 that resources were made available for the care and protection of abandoned children. The Social Security Act of 1935 provided cash assistance to help widowed or abandoned mothers and paid for children in institutional foster care. Government funding was not yet available to provide for support services for impoverished families. In 1938, the Fair Labor Standards Act was passed to prevent child abuse and exploitation in the workforce. During the first half of the twentieth century, private organizations, such as the Society for the Prevention of Cruelty to Children, the Children's Aid Society and settlement houses responded mostly to the needs of orphaned or abandoned children.

In 1962, Kempe and his colleagues brought nation-wide attention to the "battered child syndrome", physical child abuse uncovered by physicians through x-ray detection of repeated fractures and non-accidental injuries seen at hospitals (Kempe, Silverman, Steele, Droegemueller & Silver, 1962). By 1967, every state in the country had passed laws for the reporting of incidents of child abuse to local child welfare agencies.

The landmark Child Abuse Prevention and Treatment Act in 1974 (Public Law 93-247) expanded the protection of children, giving a broader definition of child abuse that included emotional maltreatment and sexual abuse. It defined child maltreatment as "the physical and mental injury, sexual abuse, negligent treatment or maltreatment of a child under the age of 18 by a person who is responsible for the child's welfare under circumstances which indicate that the child's health and welfare is harmed or threatened

thereby, as determined in accordance with regulations". The general definition of child abuse and neglect refers to acts of commission, such as non-accidental injuries and physical assaults, and acts of omission or the failure for caretakers to protect the child (Giovannoni & Becerra, 1979). The Child Abuse Prevention and Treatment Act stimulated a nationwide effort to increase awareness of child abuse, provide training for professionals and paraprofessionals regarding screening and referral, services for treating child abuse and funding for national surveys to determine the incidence of child abuse (Daro, 1988).

Under the Child Abuse Prevention and Treatment Act, the National Center on Child Abuse and Neglect was formed to monitor child abuse. Originally authorized only until 1977, Congress has continually approved its funding. The National Center on Child Abuse and Neglect developed protocols for reporting and timely response to reported abuse, legal representation for those involved, funding of a 24-hour hot line, emergency response, training and community coordination councils. Publication about the battered child syndrome resulted in new laws across the country, followed by recommendations made by the American Medical Association and the Council of State Governments that helped define reportable conditions and reporting procedures.

Between 1978 and 1983, California amended child abuse reporting laws to increase the list of mandated reporters, provide for adoption reform, priorities for out-of-home placement and jurisdiction for child protection. In 1985, the California Commission on the Enforcement of Child Abuse Laws expanded the types of behaviors that would be considered abusive or neglectful. Each state enacted laws that supported different standards for reporting and consequences for those found guilty of child abuse and neglect. Most state laws protect mandated reporters from being sued for reported cases that were later unsubstantiated.

In 1987 the House of Representatives Select Committee on Children, Youth and Families issued a report entitled, Abused Children in America: Victims of Official Neglect, and highlighted the inadequate funding and resources given to the issue of child abuse and neglect (Holden, Willis & Corcoran, 1992). In 1988, the Child Abuse Prevention, Adoption and Family Services Act (Public Law 10-294) was passed which extended the authority of the National Center on Child Abuse and Neglect and increased funding for research, grants and program activities. Two committees were established to monitor progress in this field; The United States Inter-Agency Taskforce on Child Abuse and Neglect was created with representatives from child welfare agencies, and the United States Advisory Board on Child Abuse and Neglect was formed to address policy and legislative issues.

In the 1980s, the child welfare system had focused on ways to re-unite abused or neglected children, who were living in foster care, with their families. In 1993, amendments to the Title IV section of the Social Security Act provided additional funding for family preservation and family support services designed to reduce the need for foster care (Kamerman, 1998). By the early 1990s, the rapid rise in substance abuse-related referrals to child welfare services and high profile cases of child deaths from abuse or neglect resulted in increasing numbers of young children entering out-of-home placements. The Adoption and Safe Families Act (PL 105-89) introduced in 1997, set

stricter limits on a child's duration in foster care and made provisions to speed adoption procedures to move children out of foster care.

Defining Child Maltreatment

In spite of a flurry of legislation, one of the key problems in the area of child maltreatment is the difficulty of obtaining consensus on what constitutes child abuse and neglect (Giovannoni & Becerra, 1979). There exists a range of behaviors from the most severe physical abuse to mild and less concrete forms of neglect by omission. A public opinion poll conducted by the National Committee for Prevention of Child Abuse reported that over half (52%) of families spanked their children in the past year (Daro, 1991). While some professional organizations such as the National Association of Social Workers and most recently, the American Academy of Pediatrics, passed resolutions opposing physical punishment, a 1992 survey of medical providers found that 70% of family physicians and half of pediatricians supported the use of spanking (Child Welfare Research Review, 1994).

Trickett and Sussman (1988) found that abusive parents did not differ significantly in frequency of physical punishment from non-abusing parents. However, parents who harmed their children were more likely to use more severe forms of punishment and perceived child rearing to be more difficult and parenting less satisfying. Legal definitions of child abuse have emphasized parental intent to inflict harm or the incapacity of the parent to protect the child. Yet in the majority (80%) of physical abuse incidents, the injuries were relatively minor and occurred in the context of discipline (Herrenkohl, 1990). In almost half of the families, incidents of child maltreatment co-occur with other forms of family violence (Appel & Holden, 1998). In the 1986 survey of family violence conducted on a representative sample of families in United States, the authors reported a 40% overlap between wife assault and child maltreatment (Straus & Gelles, 1986).

It is even more difficult to achieve consensus on the definition of emotional abuse and forms of child neglect and endangerment behavior that "threatens but has not yet caused observable harm" (English, 1998; Caldwell, Bogat, & Davidson, 1988). Controversy exists over the legal definition of child abuse as it relates to the fetus and whether prenatal exposure to illicit drugs should be considered abuse and the pregnant mother prosecuted for potential harm to her unborn infant. In California, some counties immediately intercede in families if the baby is born with evidence of drugs in his/her system while other counties do not consider that a positive toxicology test without further evidence of potential endangerment justifies legal intervention.

Social and cultural attitudes toward child discipline

The determination of many of these less severe forms of child maltreatment are affected by life circumstances of poverty, cultural or religious interpretations of child discipline. Families with higher levels of education are generally less likely to view corporal punishment as effective. Among some cultural groups, though, acceptance of some type of physical punishment varied little by education level. African-American, Vietnamese and Korean parents are more likely to view corporal punishment as an effective method of discipline than White or Hispanic parents. Hispanic families who lived in this country

a short time are the least likely to use physical punishment to discipline their children (Ahn, 1994). Even with these differences among various ethnic groups, attitudes about parenting practices do not indicate higher levels of acceptance of the more serious forms of physical abuse or neglect among low income families (Giovannoni and Becerra, 1979). However, official reports of child abuse and neglect are over-represented among low income populations.

Legal definitions of abuse and neglect
In year 2000, the following definitions of child abuse and neglect were used by the California child welfare services to determine substantiated occurrences of maltreatment:

Physical abuse: Refers to non-accidental bodily injury that has been inflicted on a child. Severe physical abuse refers to any single act of abuse which causes physical trauma of sufficient severity that, if left untreated, would cause permanent disfigurement, physical disability or death; or repeated acts of physical abuse, each of which causes bleeding, deep bruising, significant external or internal swelling, bone fracture or unconsciousness. Physical abuse includes both the act or endangerment of physical injury due to hitting a child with a hand, stick, strap or other objects, punching, kicking, shaking, throwing, burning, stabbing, choking or otherwise harming the child. The severity of injuries range from relatively minor (bruises and lacerations) to moderate (scarring and abrasions) to severe (burns, sprains or fractured bones).

Sexual abuse: Refers to the victimization of a child by sexual activities. Child sexual abuse includes fondling a child's genitals, sexual intercourse, sodomy, exhibitionism and commercial exploitation. Sexual abuse can be defined in three categories of severity: a) intrusion evidenced by oral, anal, or genital penile penetration or other anal or genital penetration, b) molestation involving genital contact without intrusion, and c) other forms of sexual abuse including inappropriate fondling or exposure, exploitation or inadequate supervision of the child's voluntary sexual activities. Sexual abuse is thought to be under-reported and protected by secrecy and conspiracy by the victim, perpetrator and other family members.

Emotional abuse: Refers to nonphysical mistreatment, the results of which may be characterized by disturbed behavior on the part of the child. Emotional abuse can be defined in three categories: a) confinement which includes unreasonable restriction of movement such as tying or binding a child as a means of punishment, b) verbal or emotional assault such as continual acts of belittling, denigrating, scape-goating or other nonphysical forms of rejection or threats of assault or abandonment and c) other deliberate withholding of food, shelter, sleep, attempted assault or other exploitation. Emotional abuse often exists with other forms of abuse.

Neglect: Physical and emotional neglect refers to the failure of caretakers to provide for the basic physical, educational and emotional needs of the child. Physical neglect includes refusal or delay in obtaining health care, abandonment, forcing the child to leave the home or refusal to allow the child back home and inadequate supervision. Educational neglect is a failure to enroll the child in mandatory schooling or allowing the child chronic absences from school. Emotional neglect refers to inattention to the child's

psychological needs, failure to provide affection or respond to the child's distress, and/or allowing the child exposure to continued spousal violence, drugs or alcohol.

Incidence Of Child Maltreatment

Determining trends in the actual incidence of child abuse has been confounded by changing societal and parental attitudes about what constitutes child abuse and neglect. Until the mid 1970s, reporting of child abuse and neglect was not standardized and nationwide estimates were unreliable. Between 1974 and 1988, new laws were implemented that expanded the legal definition of abuse and neglect, increased the list of mandated reporters and removed "discretionary language" for reporting suspected cases. All designated reporters were required to report their suspicions of child maltreatment to child welfare services for their staff to determine whether abuse or neglect had indeed occurred.

National Incidence Studies, 1979, 1986, 1993
Rather than relying on only cases reported to the child welfare system, the National Center on Child Abuse and Neglect implemented three national studies of recognized cases of maltreatment identified by child protective agencies, investigating agencies, and professionals in other community agencies. The national incidence studies provide periodic estimates of the incidence of child abuse and neglect in the United States, demographic descriptors about the distribution of child maltreatment, information about numbers and types of abuse or neglect and actions taken by the child protective agencies.

The incidence studies included a representative sampling of 42 counties across the nation, reviewing all reports to child protective service agencies over a three month period. In addition, the researchers interviewed mandated reporters in law enforcement, medical services, schools, day care services, other government agencies, such as public health, which have regular contact with families. To be considered "countable", the maltreatment behavior had to be non-accidental and avoidable and meet the standard definitions of abuse or neglect. In the first commissioned study of 1979, the researchers used a restricted definition of maltreatment which required that the harm resulting from the maltreatment needed to be rated as moderate or severe and inflicted by parents or parent-substitutes. In 1986, the "endangerment standard" was introduced to include additional children who were harmed by other unrelated adults and those children who experienced abuse or neglect that put them in danger of being harmed. To compare with earlier surveys and yet to incorporate new, expanded definitions, later incidence studies used two separate categories of child maltreatment.

Increased incidence in child maltreatment
Incidence of different types of abuse or neglect was reported separately using the more restricted standard of harm and expanded standard of endangerment. Using the "harm standard" alone, the incidence of child abuse and neglect that resulted in serious or moderate harm to children nearly tripled between 1974 to 1993 (Sedlak & Broadhurst, 1996). The rate of abuse increased from 9.8 per 1,000 children under age 18 in 1979 to 14.8 per 1,000 in 1986 and up to 23.2 per 1,000 in 1993. The rate of child abuse which resulted in the most serious injuries was significantly higher in 1993 than in the two previous surveys. Eight out of 1,000 children in 1993 were seriously harmed by their

caretakers. Child abuse from more moderate injuries (12.4 per 1,000 children) was not significantly different from 1986 to 1993 but had increased from the time of the first incidence survey in 1979.

Twice as many children under age 18 experienced abuse or neglect under the endangerment standard. These included additional children who were put in danger by their caregivers or unrelated adults. The rate of child maltreatment under the endangerment standard increased from 22 children per 1,000 in 1986 to 41.9 per 1,000 children in 1993. The rate of serious injury as defined under this expanded standard was significantly higher in the later survey. Rates of moderate or inferred injuries remained unchanged.

Although it is possible that changes in legislation and public education about child abuse and neglect has impacted reporting practices over the last two decades, it does not appear that news media coverage of high profile cases has inflated child abuse reporting. A review of news stories from metropolitan newspapers across the country over twenty-five years found that the number of reports of child abuse and neglect and news coverage of these events paralleled each other, increasing at the same time (McDevitt, 1996).

Characteristics of maltreated children and their family

The increase in rates of maltreatment from 1986 to 1993 was greater for children under nine years of age than for older school age children or adolescents. Overall, preschool age children had lower rates of abuse compared to older children, but those that were abused, were more likely to be victims of physical abuse than other types of emotional and sexual abuse. Boys had a greater risk of serious injury and emotional neglect than girls. Girls had been sexually abused three times more often than boys and were at risk for sexual abuse starting at age three on. There were no significant differences in the incidence of child abuse and neglect by race.

Rates of child abuse and neglect differed by family income, number of children in the family and marital status. Children from families with incomes below the federal poverty level ($15,000 a year in 1993) were 20 times more likely to experience maltreatment - using either the harm standard or endangerment standard - compared to children whose families earned over $30,000. Children of single parents were nearly two (1.7) times more likely to experience physical abuse or physical neglect than children living with both parents. Children in the largest families were physically neglected at nearly three times the rate of those who came from single-child families.

Information about the perpetrator was reported for children who suffered serious or moderate harm. In over three-quarters (77.8%) of the cases, the birth parents were the perpetrators of the abuse. Other parents and parent-substitutes accounted for 13.6% of the cases and less than ten percent (8.7%) were other family members or unrelated adults.

Child Welfare Services Reporting System

Official reports to child welfare agencies

Based on official reports made to child welfare agencies in 1999, it is estimated that 11.8 per 1,000 children under age 18 in this country were abused or neglected (U.S.

Department of Health & Human Services, Administration on Children, Youth and Families, 2000). Findings from the National Incidence Studies suggest that only 33% of child maltreatment cases recognized by professionals across the country were formally reported to child welfare agencies (Sedlak & Broadhurst, 1996). Even when abuse or neglect is identified, some professionals may choose not to report because of the vagueness of the definition of what constitutes a true case of abuse, dissatisfaction with the agency response to reporting and in some cases, the feeling that the child would be better served through alternative interventions rather than involving the child protective agency (Daro, 1988).

About half (53%) of the child abuse or neglect reports came from professionals such as teachers (15%), law enforcement (13%), doctors (11%) and other agency staff (14%). One-fifth came from family members, 12% from anonymous sources and the remainder from friends and neighbors. The proportion of children reported for child maltreatment from hospitals and schools increased significantly from 1986 to 1993 and corresponded to the rise in substance abuse among pregnant and parenting women (National Center on Addiction and Substance Abuse, 1999). In general, reports from professionals were more likely to be substantiated.

As the number of referrals to child welfare agencies rose in the 1980s, the percent of cases that were opened to investigation, declined. The capacity of the child welfare services was overwhelmed and protocols were put in place to screen and prioritize reports needing investigation (Waldfogel, 1998). Over 50% of referrals to child welfare agencies are closed because the report did not meet the legal definition. Another 20% may be closed if the families are considered low risk or if there is not enough evidence to require in-voluntary services. In 1994, only 10% of the referrals to child welfare agencies became active cases of the child welfare services (Waldfogel, 1998).

In California, nearly 400,000 children under age 18 were reported to child welfare services for suspected abuse or neglect and 35% were substantiated (U.S. Department of Health & Human Services, Administration on Children, Youth and Families, 2000). More than half of the reports (56.3%) were for neglect, 17.5% for physical abuse, 9.1% for sexual abuse, 17.8% for emotional abuse and the remaining reports (9.8%) involved child exploitation or other forms of maltreatment not identified. The total equals 110.5% but includes children who experienced more than one form of maltreatment. The majority (65%) of the children who were placed in foster care in California, were removed from their families for neglect (Needell, Webster, Barth, Armijo, & Fox, 1997).

Abuse and neglect for children under age three

The highest rates of abuse or neglect were reported for children under age three (13.9 per 1,000 children in this age group) and rates declined as age increased (U.S. Department of Health & Human Services, Administration on Children, Youth and Families, 2000). Reports of maltreatment to infants are more likely to be substantiated compared to reports for older children (English, 1998).

Child neglect is reported more often for preschool children and declines with age (Wolfe, 1977). Much of the increase in child welfare cases related to neglect of young children has been linked to the increase of parental drug use (National Center on Addiction and

Substance Abuse, 1999). From 1986 to 1991, the percent of children ages three or younger in foster care who were exposed prenatally to drugs doubled from 29% to 62% (U.S. General Accounting Office ,1991).

Children under age five were twice as likely as older children to enter foster care (Goerge & Wulczyn, 1998). In the mid-1980s, 15% of children in foster care were under one year old and almost one-third are children under three years old. By 1990-1994, 25% of entries into foster care were infants and 44% were children under three years old. The majority of infants removed from their home for maltreatment are placed into foster care soon after birth. Infants in foster care were less likely to be reunited with their families (38% reunited compared to 48% of children of all ages) and more likely to be adopted (Goerge & Wulczyn, 1998).

At the beginning of 2000, 15,000 children under the age of three were living in out-of home placements in California. Infants tended to remain longer in out-of-home placements than children of other age groups. Between 1988 and 1994, the median duration in out-of-home placements in California was 17 months for all age groups and 24 months for infants under one year of age. There were no gender differences among young children placed in foster care.

In sum, national incidence studies of identified cases of child abuse and neglect have demonstrated a significant increase in child maltreatment since 1974. In 1999, an estimated 11.8 per 1,000 children from ages birth through age 18 were reported to child welfare agencies with substantiated abuse or neglect in this country. The highest rates of abuse or neglect reported to child welfare agencies were for children under age three. Over 35% of children who are placed under protective custody for abuse or neglect and enter foster care are children under age two. Much of the increase in reports of maltreatment among young children is related to substance abuse.

Chapter II. Antecedents, consequences and predictors of child abuse and neglect

Developmental outcomes associated with child abuse or neglect

Several factors determine the effect of the abuse on the child such as the age of the child at the onset of abuse or neglect, severity, frequency and duration. An understanding of the cognitive, social and emotional deficits that result from child maltreatment is made more difficult because of the problems defining child abuse and neglect and the fact that different forms of abuse co-occur. In a study of low-income, inner city children, 37% of the severely maltreated children suffered from three forms of maltreatment, almost all including some form of emotional abuse or neglect (Ayoub, 1999). Many studies aggregate different types of child maltreatment and are not able to differentiate between child outcomes due to varying forms of abuse or neglect (Youngblade & Belsky, 1990). Additionally, the effects on development from less severe forms of maltreatment may be confounded by the effects of chronic poverty (Garbarino, 1976).

Although much has been written about the adverse outcomes for survivors of child abuse or neglect, most of the studies have been retrospective or cross sectional. There have been only a few prospective longitudinal studies that have investigated the socio-emotional and cognitive consequences of early maltreatment. For this review, I will focus primarily on findings from prospective studies of children who experienced abuse or neglect in early childhood.

Fatal outcomes

In 1999, it was estimated that 1.6 children of every 100,000 children or approximately 1,100 children in this country died from abuse or neglect (U.S. Department of Health & Human Services, Administration on Children, Youth and Families, 2000). Children younger than two years old accounted for 59% of all child fatalities related to abuse or neglect, with the majority of these deaths (43%) occurring to infants under one year old. Child neglect cases, often viewed as the least threatening form of maltreatment, has been associated with almost half of all child abuse fatalities as well as significant developmental delays in children (Berrick, 1997; McCurdy & Daro, 1994). In 1999, 38.2 % of child deaths related to maltreatment were attributed to neglect alone, 22.7% to a combination of abuse and neglect and 26.1% to abuse. The absence of someone to take care of young children can also result in the most severe and life-threatening form of failure to thrive syndrome.

Social, emotional and cognitive consequences of maltreatment in early childhood

The Minnesota Mother-Child Project: Egeland and his colleagues, (Egeland, Sroufe & Erickson, 1983, Farber & Egeland,1987, Egeland, Jacobvitz & Sroufe, 1988), conducted a longitudinal study of 267 first time low income mothers and infants, 44 of whom were reported for abuse or neglect by age six. These children showed significant impairment in school achievement, behavior problems and psychological health compared to a control group of classmates (Farber & Egeland, 1987). At ages two and three, the abused or neglected children displayed more frustration, anger, noncompliance and other behavioral problems than the group of children who were not abused. The children were categorized into four maltreatment groups: physical abuse, hostile/verbally abusive,

neglecting, and psychologically unavailable. Mothers in the psychologically unavailable group were generally unresponsive to their children and in many cases, rejecting of them.

These same children were later observed and tested at 3 ½ and 4 ½ years of age in preschool situations. Physically abused children were more likely to be hyperactive, distracted and lacked persistence. These children also displayed considerable negative emotions. Verbally abused children expressed more anger and frustration and were more noncompliant than children in the control group. Children of psychologically unavailable mothers were highly avoidant of their mothers, often angry and noncompliant. The children who were neglected also demonstrated negative affect, decreased persistence with tasks, poor self-esteem and had the most difficulty "pulling themselves together to deal with various tasks" (Egeland, Sroufe & Erickson, 1983).

As the children reached school age, they showed deficits in both social and academic adaptation. Maltreated girls in the early years of school were significantly more likely to be inattentive, lacked social competence and were rated unpopular with their peers. By third grade, though, these girls showed little difference from the controls for anti-social behaviors except for being rated unpopular with their peers (Egeland & Kreutzer, 1991). Maltreated boys were significantly more likely to be rated poorly for social competence and emotional functioning, primarily in the early years and displayed more self-destructive behaviors in all grades. Academically, these children had lower academic scores, and by third grade, 76% of the children were recommended for special education or held back in school compared to 56% of the control group of their peers. Early cumulative stressors, however, were more predictive for first grade outcomes and less so for later grades.

Over 300 maltreated and non-maltreated low income children were enrolled in the Harvard Child Maltreatment Project. Maltreated children, observed through the Ainsworth Strange Situation model of attachment, were likely to be coded as more disorganized and disoriented in their attachment relationship (Schneider-Rosen, Braunwald, Carlson & Cicchetti, 1985). These children were likely to show more undirected or interrupted behaviors. Additional short-term studies were done with a subset of children from the original cohort (n=120-190) and control groups from low-income families. By school age, maltreated children differed from low- income children in their readiness to learn, their motivation and their initiative (Aber, Allen, Carlson & Cicchetti, 1989). They also were more depressed, socially withdrawn, and more aggressive. No difference was found for "outer directedness", defined as problem solving abilities and reliance on internal cognitive resources, which appeared equally problematic for maltreated children and the comparison group of low income children.

In another longitudinal study of a community sample of school children in Virginia (n=107), the objective was to discern differences in the effects of maltreatment on peer relationships by type of maltreatment (Bolger, Patterson & Kupersmidt, 1998). Children with reported maltreatment during their preschool years and their classmates who had never experienced maltreatment were enrolled in the study in second grade and followed for an average of five years. Children who experienced chronic long-term maltreatment were least liked by their peers and rated the lowest for self-esteem. Emotionally abused children had more difficulties with peer relationships while sexually abused children

rated lower on self-esteem. Over time, developing a close friendship was associated with improved self-esteem.

Long term effects of early maltreatment in adolescence
Follow-up data from the Minnesota-Mother Child Project showed that children who have been abused or neglected continue to have problems into adolescence and adulthood. Abused children are more likely to fail in school, display more anti-social behavior and psychiatric problems (Farber & Egeland, 1987). In adolescence, maltreated children had lower achievement scores and were described by teachers as having more behavior problems and conflicts with their peers than children who had been maltreated (Egeland, Hyson, Yates, & Roisman, 1999). Teenage children of psychologically unavailable mothers were more likely to report thoughts of suicide.

Over half (53%) of the maltreated children dropped out of school compared to 18% for the students in the control group. On psychiatric evaluation at age 17, the children who had been raised by caregivers who were unresponsive, had the highest frequency (73%) of co-morbid problems of depression and other psychiatric problems compared to (60%) of physically abused children or (30%) of controls (Egeland, Hyson, Yates, & Roisman, 1999). Sexually abused adolescents reported higher drug use than teens who were neglected or teens in the control group.

Potential for intergenerational child abuse and neglect
Retrospective studies of parents who are abusers have found that adults who were maltreated as children are more likely to perpetuate intergenerational abuse or neglect with their own children (Main & Goldwyn, 1984; Zeanah & Zeanah, 1989). Although being abused as a child may increase the risk for becoming an abusive parent, a wide variety of environmental stresses and "triggering mechanisms" are involved (Widom, 1989). It is estimated that less than one-third (30%) of individuals who were themselves physically abused or severely neglected go on to abuse or neglect their own children (Kaufman & Zigler, 1987). Maternal history of abuse in childhood, as a single risk factor and in the absence of a multitude of other life stressors, was not predictive of the mother's future abusive or neglectful behavior during the first two years of their infants life (Murphy, Orkow & Nicola, 1985; Milner, Gold, Ayoub & Jacewitz, 1984).

Protective factors in the lives of children who are maltreated
Prospective longitudinal studies have shown that <u>not</u> every child who was abused or neglected in early years experienced negative affects or serious long term outcomes. Although maltreated children showed lower achievement in school and greater behavioral problems, some studies have shown few differences in cognitive skills and language ability in comparative groups of non-maltreated children, with the exception of being able to articulate feelings (Ayoub, 1999; Cicchetti, 1990).

Over time, the effects of maltreatment on some children were mitigated by stabilizing influences in the environment, or for others, protected to some degree by a secure relationship with their mother (Farber & Egeland, 1987). The mother's education and the presence of the biological father in the home were found to be protective buffers (Farber & Egeland, 1987; Runyan & Zolotor, 1999). In a longitudinal study of maltreated low-income children from preschool to adolescence, Herrenkohl, Herrenkohl

and Egolf (1994) found that maltreated adolescents who succeeded in school and reported satisfactory social relationships were less likely to be exposed to chronic physical abuse, had higher intelligence scores, reported one stable non-abusing caretaker throughout childhood and were capable of goal setting and planning. At every age, emotional support by the mother, or another involved caregiver, serves to reduce the vulnerability of the child even into adulthood (Werner & Smith, 1992).

In sum, maltreated children display a range of negative behaviors in early childhood, either through social withdrawal or aggression, and are less likely to develop social competence or positive relationships with their peers. By school age, maltreated children are more likely to suffer from poor self-esteem and do poorly in school. Children who suffer from chronic maltreatment or whose caregivers are emotionally unresponsive are the most likely to have poor developmental outcomes. The effects of maltreatment on some children may be mitigated by protective factors such as the mother's education, the presence of a stable and trusted caregiver and/or the ability to plan and set goals for achievement.

Understanding the Causes of Child Maltreatment

Early research into the cause of child abuse and neglect attempted to identify causative factors common to adults who abuse their children but the cause of child maltreatment could not be clearly linked to one single risk factor. Individual risk factors (i.e., parental psychopathology) by themselves were not predictive of abuse in the absence of other stressful life circumstances (Garbarino, 1976). More recently, ecological theories of child maltreatment support an interaction of multiple psychosocial and environmental forces that together contribute to the occurrence of abuse (Belsky, 1980; Cicchetti & Lynch, 1995). Belsky based his model on Bronfenbrenner's (1979) ecological theory of human development and views the phenomenon of child maltreatment on four levels: the individual, the family, the community and the society.

Child characteristics

Young children, due to their physical size and developmental immaturity, are more vulnerable to certain types of maltreatment such as the "shaken infant syndrome", "failure to thrive" and "battered child syndrome" (Kempe, Silverman, Steele, Droegemueller & Silver, 1962; Kempe, Cutler & Dean, 1980). Infants who are premature, less responsive or show high levels of irritability may be at greater risk of abuse in situations with less capable caregivers, demonstrating the bi-directionality of child and caretaker effects (Sameroff & Chandler, 1975). Children who are disabled and perceived as different, too weak to interact with the mother or demanding because of small size or illness, are at greater risk of abuse or neglect from caregivers who are overstressed or unable to empathize with the child's difficulties (Ney, 1988; Jaudes & Diamond, 1985).

Crittenden (1985) found evidence of the bi-directional effects of child characteristics and mother's behaviors among maltreated children. Abused children were observed to be more difficult, angry when stressed or mildly delayed whereas neglected children were

more likely to be passive and helpless when stressed. However, after therapeutic intervention, investigators observed improvements in the mothers responses and the infants' behaviors became more cooperative. Crittenden suggested that maltreated children learned patterns of behavior that may, over time, precipitate and sustain mothers abusive or neglectful responses.

There is no clear evidence that temperament of the infant increases the potential for child maltreatment. However, having a child with a difficult temperament may serve as a child-produced stressor which, in conjunction with other environmental factors, may increase the potential for child maltreatment (Sroufe & Waters, 1977). In studies of perinatal predictors of child maltreatment in the first two years, difficult temperament, as perceived by the mother, was found to be related to subsequent abuse (Altemeier, O'Connor, Vietze, Sandler & Sherrod, 1984). Alternately, a child's easy temperament, attractiveness or ability to engage others may be protective in adverse environments (Werner & Smith, 1992). In a few cases, abused children who as newborns were more alert and had better physiological control, showed more success with developmental tasks at two years of age compared to other maltreated children (Farber & Egeland, 1987). Even for these children, environmental factors proved more important predictors than child temperament for outcomes in later childhood.

Psychopathology of abusing parents

Retrospective studies of abusing parents demonstrated a strong association with parental psychopathology or mental disorders that disinhibit aggressive impulses (Spinetta & Rigler, 1972). Maltreating parents showed poor self-control, pervasive and often generalized hostility or aggressiveness than non-abusing parents. Much of this was attributed to learned aberrant parenting behaviors observed among abusive parents and parents with severe personality disorders. While socioeconomic problems added stress for many of these families, Spinetta and Rigler (1972) suggested that these "stresses are not of themselves sufficient or necessary causes of abuse".

Although prospective studies have failed to identify a single causative factor, certain behavioral patterns and personality disorders such as inflexibility and maladaptive responses in stressful situations, may increase the likelihood of child abuse or neglect (Factor & Wolfe, 1990; Gelles, 1973). Severe depression and personality disorders such as impulsivity and low self-esteem have been associated with child abuse and neglect (Chaffin, Kelleher & Hollenberg, 1996; Murphy, Orkow & Nicola, 1985; Wolfe, 1985). In a prospective study predicting child maltreatment from factors assessed during the neonatal period, a high depression score (CES-D) significantly differentiated maltreating mothers from mothers whose infants were not abused or neglected (Kotch, Browne, Dufort & Winsor & Catellier, 1999).

Substance abuse and child maltreatment

By the mid 1990s, it was estimated that between 50% to 80% of families involved with child protective services had substance-abuse problems (English, 1998). Children whose parents abuse drugs and alcohol are almost three times (2.7) more likely to be abused and four times more likely to be neglected than children of parents who are not substance abusers (Kelleher, Chaffin, Hollenberg, & Fischer, 1994). Women who are addicted tend to live chaotic lives and behave inconsistently with their children. Substance abusers

often suffer from depression, low self-esteem and can be emotionally disengaged from their children (National Center on Addiction and Substance Abuse, 1999). Egeland and his colleagues (Egeland, Sroufe & Erickson, 1983) found that both depression and substance abuse were associated with maltreating mothers who were emotionally unresponsive to their child's needs. In addition, substance-exposed children are more likely to be born small for gestational age, have feeding problems, are more irritable and less responsive to caregivers which may be potentiating factors for child abuse.

Parental misperception and negative interpretation of child behavior

Abusing parents have more negative perceptions of their children's behavior than non-abusing parents. They are more likely to perceive them as more irritable and demanding (Rosenberg and Reppucci, 1983). This may be partially due the increased frequency of their children's health problems, eating or sleeping disturbances which, for some, may be in response to parental abuse or neglect. Parents do not necessarily lack knowledge about normal development, although child development milestones are often the focus for parenting education classes. Instead, their expectations about the child's behavior and level of compliance are often unrealistic (Browne and Herbert, 1997). They may interpret certain age-appropriate behavior as deliberate or intentional non-compliance, concluding that this behavior is an indication of the child's inherent "bad" disposition.

Abusive parents may see their child's behavior as a threat to their sense of control, creating a sense of incompetence as a parent and eliciting a more punitive response (Bugenthal, Blue, Cortez, Fleck, Kopeikin, Lewis & Lyon, 1993; Factor & Wolfe, 1990). Abusive and non-abusive parents reacted differently when presented with scenes of videotaped or real parent-child interactions, some of which were highly stressful scenarios of children screaming or refusing to cooperate (Wolfe, 1985). Abusive parents respond to these incidents with greater negative psychophysiological arousal and elevated cortisol arousal levels correlated with increased feelings of stress (Bugenthal et al, 1993; Wolfe, 1985).

Attachment in early childhood and the relationship with child maltreatment

Attachment theory suggests that the development of insecure or disrupted attachment organization in childhood affects later relationships (Bowlby, 1973; Crittenden & Ainsworth, 1989; Main & Goldwyn, 1984). Using an adult attachment interview instrument to assess mothers early attachment relationship with their caregiver, investigators found a high level of agreement between the mother's childhood classification and their current attachment with their own child. Evidence of rejecting behavior, being psychologically unresponsive to the child and role reversal were found among adults classified as insecure on the adult attachment interview (Zeanah & Zeanah, 1989).

Belsky (1984) proposed a cumulative-risk model that postulates adults with multiple risk factors will parent more poorly under stress compared to those with only one risk factor. To demonstrate the relationship of attachment to parent behavior under stress, researchers observed parents during days with few stresses and days with moderate stresses (Lichtenstein Phelps, Belsky & Crnic, 1998). Parents were classified as "earned security" parents, insecure and secure. Stress was defined as to the number of daily hassles encountered. Mothers who had experienced inadequate parenting but who had

participated in therapy and criticized the way their parents behaved towards them as children and supported alternative parenting for their children were referred to as "earned security" parents. Under low stress, no group differences were found. Under high stress, the "earned security" mothers parented more positively than those classified as insecure who rated the lowest and similarly to the parents classified as secure. Parents with a history of insecure attachment may have greater difficulty coping with daily hassles and stresses of life and may continue to be at greater risk for poor parenting.

Social isolation

Part of the problem with defining social isolation is that counting the number of network members does not describe the adequacy of emotional support and assistance or levels of stress the mother derives from these contacts (Coohey, 1996). In studies where neglectful mothers perceived neighbors as not supportive, interviews with nearby families indicated that neighbors often distanced themselves and were less likely to turn to these mothers for assistance (Polansky, Gaudin, Ammon & Davis, 1985). Polansky proposed that the passive demeanor and emotional detachment that neglectful mothers display typifies the "apathy-futility syndrome" and is a way of coping with overwhelming demands and stresses. Seagull (1987) found little evidence of social isolation for maltreating families, but when isolation was evident, it was due more to limited social skills than lack of support provided from family or neighbors. Furstenberg (1995) suggested that the causes of social isolation may be different for neglecting families (i.e., limited social competence) than for abusing families (i.e., distrust, conflicts with family and neighbors).

Community violence

In general, rates of maltreatment are higher among children who reported higher levels of violence in their community (Cicchetti & Lynch,1995). The prevalence of violence, fear of personal safety and other serious problems in the community are likely to create an increased risk for problems within the family system. Higher levels of violent crime in the United States compared to other developed nations may serve as evidence of the increased tolerance and social acceptance of violence and possibly violence against children (Cicchetti & Lynch, 1995; Widom, 1989). Analyzing results from a national survey of victims and perpetrators of violence, Owens and Straus (1975) found that exposure to family or community violence as a child was related to approval of interpersonal violence and may have contributed to the support of cultural norms for use of violence in conflict situations.

Ecological model: Multiple stressors increase the potential for maltreatment

The occurrence of child abuse and neglect is more likely to occur in the presence of other multiple stressful life circumstances (Wolfe, 1997). The incidence of child maltreatment has been disproportionately reported among the lowest income families (Sedlak & Broadhurst, 1996). Garbarino (1976), in his study of socioeconomic correlates of child abuse, concluded that economic stress and lack of resources undermine parenting functioning which is more likely to result in the occurrence of child maltreatment. Other studies have shown that increases in child abuse are preceded by periods of unemployment (Steinberg, Catalano & Dooley, 1981). In a large study of fathers who abused their children, unemployment was the single factor that most distinguished abusive from non-abusive families (Gil, 1971).

Breaking the cycle of child abuse

Several factors have been linked to breaking the cross-generational cycle of abuse. Adults who do not reenact inadequate parenting appear to have an awareness of or "coherent perspective" on how their difficult childhood can affect their own well-being and potentially affect their parenting behaviors (Egeland, Jacobvitz & Sroufe, 1988). Mothers who have participated in therapy or speak openly against their own history of negative parenting are less likely to abuse or neglect their children (Kaufman & Zigler, 1987). Similar to other studies of successful adults who had faced multiple adversities in childhood, abused mothers were significantly more likely to report receiving emotional support from another relative or adult during childhood (Kaufman & Zigler, 1987; Rutter, 1987; Werner & Smith, 1992).

In sum, current explanations for the causes of child maltreatment have shifted from a static model that focused on traits of the individual to a multi-dimensional and bi-directional process-oriented model. Children from low-income households are at increased risk and often live in families that face a multitude of daily stressors and have limited access to personal resources or community assets commonly available to middle or upper income families. Understanding the multiple influences that contribute to the risk of abuse and neglect as well as the protective factors affords the opportunity for developing effective intervention programs.

Assessing potential for child abuse or neglect during pregnancy

Wilson (Wilson, Reid, Midmer, Biringer, Carroll & Stewart, 1996) published an extensive review of studies which identified psychosocial factors associated with child abuse and other adverse postnatal outcomes. Risk factors significantly associated with child abuse or neglect that were identified by Wilson and her colleagues as well as from other prospective studies for predicting child maltreatment during the perinatal period are listed below.

Risk Factor	Description
Lack of social support	Social isolation, lack of emotional support from spouse, no person to call in time of need
Recent stressful life events	Life stressors such as financial problems, serious family illness or death, legal problems, frequent moves
Suspected child abuse in the past	Reported abuse, cursing at children, frequent spankings or harsh discipline of children or use of belt, physical punishment before baby is crawling
Poor relationship of mother with her parents	Lack of closeness with mother, feeling that parents were harshly critical with her in childhood
Low self-esteem, poor self-image	Mother does not feel good about herself, usually feels unsuccessful in life
Past or present psychiatric disorder	Mother's chronic depression, current psychosis or chronic psychiatric problems
Mother or partner experienced or witnessed violence in childhood	Sexual exploitation in childhood, severe discipline or punishment, deprivation, placed in foster care
Pregnancy unwanted by mother >20 weeks gestation	Child unwanted, lack of participation in medical care or quit prenatal classes
Emotional, physical, sexual or verbal abuse of mother by partner	Woman is hit, slapped, pushed, has objects thrown at her, partner denigrates her or tries to control her
Substance abuse by mother or partner	Heavy alcohol use with loss of control or "drinking more than I should", illicit drug use, daily prescriptive drugs

Risk Factor	Description
Two or more young children *	Having another baby within 12-16 months, several small children
*Poor marital adjustment or satisfaction**	Separation or divorce, poor communication with spouse

(* less strongly correlated with child abuse and neglect)

Measures used during pregnancy to predict child maltreatment

Only a few prospective studies have attempted to predict the risk of child maltreatment during the prenatal or perinatal period. The following are findings from four prospective studies which used standardized risk assessment measures during the prenatal period to identify indicators predictive of child maltreatment:

Predicting child abuse and neglect during pregnancy using the Family Stress Checklist (Murphy, Orkow, & Nicola, 1985)

Low income pregnant women (n=587) from a federally funded maternal and infant health project in an urban center of Colorado were interviewed using the Family Stress Checklist to identify predictors of child maltreatment the first two years of life. Interviews were conducted by a social worker in a clinic setting during the second trimester of pregnancy. The checklist consisted of prenatal indicators similar to those listed on pages 33-34 and additional items relating to attitudes about parenting. Almost two-thirds of the women (61%) were rated as low risk for child abuse or neglect (scores 0-10), 32% scored at moderate risk (scores 15-35) and 7% scored very high risk (scores <40).

A review of medical records was conducted for 100 infant charts of low risk mothers and 146 infant charts of moderate-high risk mothers when the children were 2 to 2 ½ years old. All available infant charts mothers who rated very high risk were reviewed (38 of 42 "very high risk" charts). Child abuse or neglect was determined by documentation of direct evidence of maltreatment. The presence of one or two risk indicators was rated as mild neglect and the absence of any indicators was rated as adequate parenting. Overall, 3% of the infant charts selected showed evidence of direct abuse or neglect. Fifty-three percent of the infants of very high risk mothers had evidence of maltreatment in comparison with 5% of infants of moderate risk mothers and 2% of infants of low risk mothers. Measurement of maternal risk was based on a severity of indicators which has been shown to be a better predictor than indicators only noting the presence or absence of risk. However, relying on medical records may miss infants who only get episodic medical care, go to multiple providers or for whom incidents of maltreatment were not documented in the medical charts but were reported to child welfare.

Predicting child abuse and neglect during pregnancy using the Maternal History Interview (Brayden, Altemeier, Dietrich, Tucker, Christensen, McLaughlin & Sherrod, 1993)

Studies were conducted in 1975 and 1986-1986 using the Maternal History Interview during pregnancy to predict child maltreatment in the first four years of life and to evaluate the effectiveness of an intervention program to reduce child maltreatment. The second study done in 1986-1986 used a revised Maternal History Interview which eliminated indicators not found to be significantly correlated with abuse or neglect and subjective observations that had been included in previous predictive analyses.

Low-income pregnant mothers were recruited from an urban hospital clinic in the southeast and interviewed by trained research assistants. The majority of mothers were White and had not completed high school. Mothers responded to questions in an open-ended fashion and answers were rated into predetermined categories. Hierarchial regression analysis had been previously done to select a group of variables most predictive of abuse. Of 1,089 women, 29% scored high risk on the revised Maternal History Interview. Women were than randomized into intervention and control groups.

A review of state department of health services records was done to determine child maltreatment for all study families. Overall, 5.1% of the children had substantiated physical abuse and 6.6% had substantiated neglect during their first four years of life. The predictive value of the Maternal History Interview was determined using only the non-intervention group of high risk and low risk mothers. The Maternal History Interview had a sensitivity of 56% for predicting physical abuse but was not useful for predicting which groups of children would experience neglect. Of those abused, 6.6% of the children born to high risk mothers experienced abuse compared to 2.3% of children of low risk mothers. For neglect, 4.1% of children of high risk mothers were neglected compared to 5.7% of children of low risk mothers.

The authors noted differences between the 1975 and 1984-86 studies. The incidence of abuse and neglect more than doubled for this hospital population over 10 years (2% versus 5% for abuse and 3% versus 6% for neglect). Women in the later study were more likely to have been raised in single homes, to be unmarried and to report higher exposure to family violence and drug use. It was also noted that the predictive ability of the model had been higher using the original Maternal History Interview which included methods for scoring interviewer comments and observed maternal behavior during the interview process.

Predicting child maltreatment in the first 4 years of life from characteristics assessed in the neonatal period (Kotch, Browne, Durfort, Winsor & Catellier, 1999)

Between 1985 and 1987, low-income women (n=708) were recruited from a public hospital and *high-risk* infant program in North Carolina to assess predictors of child maltreatment during the first four years of life. Two-thirds of the women were Black, unmarried and had incomes at or below the federal poverty level. Women were surveyed at home by trained interviewers when infants were on average 1½ months old. The questionnaire incorporated several standardized scales including the CES-D for

depression, the Life Experiences and Everyday Stressors Index, Social Network Index and Social Well-Being Index. Social well-being measures assessed the mother's relationship with significant others, her social contacts, activities and social resources. Stepwise logistic regression analyses were done to identify variables most predictive of maltreatment. Separate analyses were used to determine the interaction of stress and social support on child maltreatment.

State records of abuse and neglect were reviewed over four years. Twenty-four percent of the children had substantiated reports of maltreatment, largely involving neglect. Nearly half of the substantiated cases were reported for children under one year of age. Incidence of child maltreatment was higher in families where mothers were depressed, did not graduate from high school, experienced periods separated from their mother, reported alcohol use, depended on public assistance income and had more than one dependant child. Interaction models demonstrated significant interactions between social well-being and depression and social well-being and number of stressful life events. Mothers who rated high for social well-being but reported high levels of depression doubled the odds of abuse or neglect for their infant.

The rate of reported child abuse and neglect in this sample was higher than most other studies. Not only was the population drawn from a high risk sample, analyses done for this study used *both* substantiated and unsubstantiated reports of child maltreatment through the first four year of life. Separate analyses using just substantiated reports demonstrated similar results except that statistical power was reduced using the lower number of substantiated cases. Twenty-one percent of the children whose first report was not substantiated had a subsequent substantiated report in the first four years of life. By eight years of age, 44% of the children with a previously unsubstantiated report had evidence of substantiated maltreatment.

Predicting child abuse and neglect during the first months of life using the Child Abuse Potential Inventory (Milner, Gold, Ayoub, & Jacewitz, 1984)

Two hundred parents with infants under six months of age were recruited from a urban at-risk parent child program in Oklahoma and had been identified by clinical assessments as at risk of poor parenting, child abuse or child neglect. All were given the client-administered Child Abuse Potential Inventory (CAPI) to complete to be able to predict indicators of child maltreatment. All women were clinically assessed to be at risk of poor parenting, although none of their infants had reports of maltreatment at the time of enrollment. The CAPI has 160 items in an agree/disagree format with questions that address the major categories of loneliness, rigidity, family problems, child problems, unhappiness, distress and negative self-concepts. The scale has a readability level of Grade 3 and includes a lie scale and inconsistency scale. Of the 190 who completed the CAPI, 103 (54.2%) had scores above the cutoff level for high potential for abuse or neglect.

Abuse or neglect was confirmed by a Suspected Child Abuse and Neglect team. Of the 200 families, 42 (21%) had confirmed reports of child maltreatment; 11 for abuse, 15 for neglect and 16 for failure-to-thrive. In total, 28.2% of the 103 infants of parents with elevated scores were maltreated. All eleven of the confirmed abused cases had scores

above the CAPI cutoff. Eighteen (58%) of the infants reported for neglect or failure-to-thrive had elevated CAPI scores. Most children were reported under one year of age; a mean of 6 ½ months lapsed between the time of the initial CAPI testing and the date a report of abuse or neglect was confirmed. CAPI scores were significantly correlated with abuse, but were less predictive of child neglect, half of whom were reported for failure-to-thrive. The authors noted that all families received some form of intervention which may represent successful prevention rather than CAPI error.

In sum, the few studies that were conducted to predict child maltreatment in the prenatal period had sampling biases, often recruiting high risk families without including a comparison group. The ability of the instrument to predict maltreating families was dependent on the cutoff value for determining high or low risk. In prospective studies during the first two to four years of life, the highest number of reports of child maltreatment were in the first year of life. Findings from these studies suggest that prenatal measures to predict child maltreatment may be more accurate for abuse than neglect and that information derived from subjective comments and observations may improve the predictive power of the risk assessment.

Objectives of current study

The principal objectives of the current study are to determine if the assessment process used in the California Medi-Cal funded Comprehensive Perinatal Services Program for low-income women can:

1) Identify individual risk factors that are associated with child abuse or neglect in the first two years of life

2) Determine if a combination of these risk factors can effectively discriminate between the mothers of infants who are abused or neglected and the mothers of infants who have no record of maltreatment.

Chapter III: Methodology

Study population

The population for this study included all residents of Yolo County who had live births between June 1, 1998 and May 30, 1999 and received Medi-Cal funded prenatal care. There were 839 births to county residents with Medi-Cal funded prenatal care during this period, comprising 39% of all births in Yolo County. Information about births to residents in Yolo County was obtained from the county birth registry database. Birth certificate records for county residents who gave birth in other counties are re-allocated monthly to the county of residence and are included in the county birth files. The majority of births to low-income women receiving Medi-Cal during this study period occurred in local hospitals, either in Yolo County (72%) or nearby Sacramento (27%) and 1% of births occurred outside of these two counties.

The Medi-Cal funded Comprehensive Perinatal Services Program (CPSP)

The Comprehensive Perinatal Services Program (CPSP) was created in 1987 to reduce morbidity among low-income pregnant women and their infants in California. Medi-Cal providers are not required to participate in the CPSP program but providers who become CPSP certified are reimbursed nearly double the amount if they agree to provide support services in addition to standard medical care. CPSP obstetric providers are physicians, midwives or nurse practitioners. Although all CPSP clinics are required to have licensed nutritionists, social workers and health educators to develop protocols for assessment and referral and to provide direct services to identified clients, training is provided to non-licensed staff to conduct risk assessments and provide routine prenatal education.

In addition to standard protocols for medical care, CPSP providers were required to conduct an initial assessment which included four components – obstetric, nutrition, health education and psychosocial – using approved assessment forms. Psychosocial indicators that are required to be included on the initial assessment include questions about personal adjustment to the pregnancy, history of previous pregnancies, substance use and abuse, housing, financial and material resources, household composition, emotional status and coping skills. Based on the information obtained on the initial assessment, providers developed an individualized care plan to "prioritize problems and actions planned to resolve them" (CPSP Provider Handbook, Department of Health Services). Providers are required to conduct reassessments each trimester to identify changes in status since the last visit and provide support services to address these needs.

The state Department of Health Services developed a standardized *Initial Combined Assessment* measure for providers to use. However, health care providers could modify this measure or develop their own as long as they included the key components specified in the CPSP handbook. In Yolo County, the two major obstetric providers for Medi-Cal funded prenatal care were using the *Initial Combined Assessment* developed by the state during this study period. Although individual prenatal risk assessments are completed by CPSP providers throughout California, the data from CPSP program sites have not been collected or analyzed to determine prevalence of risk indicators for the state population of low-income prenatal patients.

Characteristics of mothers receiving Medi-Cal funded prenatal care in Yolo County
Information about prenatal care utilization, health indicators about the newborn infant, and demographic data for both mothers and fathers were obtained from the birth certificate files and were available for all subjects included in the study (see Table 1).

Table 1: Mothers with Medi-Cal funded prenatal care: Demographics, prenatal care access and the health condition of the newborn (n=839)

Indicators from the Birth Certificate		Number	Percent
Race/ethnicity:	Hispanic	495	59.0%
	White, non-Hispanic	265	31.6%
	Asian/Pacific Islander	44	5.2%
	Black, non-Hispanic	20	2.4%
	American Indian	12	1.4%
Country of origin:	Native born in USA	411	49.0%
	Mexico	332	39.6%
	Other countries	96	11.4%
City of residence:	Woodland	347	41.4%
	West Sacramento	283	33.7%
	Davis	87	10.4%
	Winters	54	6.4%
	Unincorporated	68	8.1%
County where baby was born:	Yolo County	628	74.9%
	Sacramento County	200	23.8%
	Other counties	11	1.3%
Mother's Age Group:	14-19	153	18.2%
	20-24	280	33.4%
	25-34	312	37.2%
	35+	94	11.2%
Marital status:	Married	432	51.5%
	Unmarried	400	47.7%
Mother's education:	0 - 11 years	427	51.3%
	12 years	265	31.9%
	13+ years	140	16..5%
Entry into prenatal care:	First trimester (1-3 months)	507	60.4%
	Second trimester (4-6 months)	239	28.5%
	Third trimester (7-9 months)	93	11.1%
Number of prenatal visits:	1-4	65	7.8%
	5-8	189	22.7%
	9 +	560	69.3%
Previous children:	None (primipara)	315	37.5%
	1 –2 children	408	48.6%
	3 + children	126	13.7%
Infant birth weight:	Normal birth weight (>2500 gm or 5.5 lbs)	787	93.8%
	Low birth weight (<2499 gm or 5.5 lbs)	52	6.2%
Medical condition at birth:	None	801	95.5%
	One or more medical problems	39	4.5%

All mothers are low-income and have household incomes that fall below 200% of the federal poverty level as the primary eligibility criteria for Medi-Cal funded prenatal care in California. Ninety percent of the women in the study were White or Hispanic. Over half of the infants were born to Hispanic mothers (59%) and/or Hispanic fathers (65%). A large proportion (51%) of mothers were born outside the United States, with the majority (78%) from Mexico. Two-thirds of the Hispanic mothers in this study had been born outside the United States. All low income pregnant women, regardless of immigration status, were eligible to receive Medi-Cal funded prenatal care.

Four out of ten births were to residents of the farming community and county-seat of Woodland, 33% lived in urban West Sacramento, 10% lived in Davis, where there is a campus of the University of California, and 15% were from the rural areas of the county. Nearly half (48%) of the mothers were unmarried at the time of birth. Mothers were generally young, with over half (52%) under age 25 and nearly one-third age 21 or younger, at the time of birth. For 38% of mothers, this was their first child. Half (51%) of the mothers had not completed 12 years of formal schooling at the time of this birth. Fathers were even less likely to complete high school, with 54% reporting less than 12 years of schooling.

Most (75%) mothers entered prenatal care within the first 16 weeks of pregnancy. Ten percent of the mothers in this study delayed entry into prenatal care until the third trimester of pregnancy. There were eight twins, one of whom was a fetal death. The infants were generally healthy at birth. Of the 839 infants, 52 (6.2%) were low birth weight and 38 (4.5%) were noted to have additional medical problems at the time of birth, only one of which was described as a drug withdrawal syndrome.

Three-quarters of the Medi-Cal funded births for this population occurred in hospitals within the county. Almost all the remaining births were in the adjacent large metropolitan county of Sacramento and 1% occurred in hospitals located over 100 miles away.

Review of child welfare service and prenatal care records

Child abuse and neglect reporting system

In January 2001, all 839 Yolo County birth records were matched against the statewide database of reported child abuse and neglect. Child welfare offices use a standardized computer program to register all reports of suspected child abuse or neglect throughout the state of California. This program is mandated for use in every county and is linked statewide. It enables child welfare staff from any county to check and see if a report of abuse or neglect was recorded in any other part of the state.

The outcome variable is any substantiated incident of child abuse or neglect documented in the California Child Welfare System. Reports of abuse or neglect to Yolo County children who had moved to another county in California are available through the computerized reporting system and were accessed through the local Yolo County child welfare office. Reports of alleged child abuse or neglect come from law enforcement, medical and social service staff, schools, neighbors or other agencies serving young children. Child welfare staff collect information from the reporting party to determine

whether the allegations meet the legal definitions described in the Child Abuse and Neglect Report Act. If so, an in-person investigation is conducted and if there is sufficient evidence of abuse or neglect according to child welfare protocols, the report is considered substantiated child maltreatment.

Information from the computerized child welfare system includes any child who was investigated for suspected abuse or neglect; the disposition of the investigation as substantiated, "inconclusive" or "unfounded"; the age of the child at each report; the type of maltreatment; the reporter; the perpetrator(s); the county of report, and a short vignette of the findings from the initial investigation. Previous referrals and the disposition of those investigations are also described. Information about substance use and domestic violence is often noted but is not mandated.

Investigations of suspected child maltreatment, for which there is insufficient evidence to meet the legal definitions of abuse or neglect, are considered "inconclusive", and the case is closed to child welfare services, but the family may be referred to another agency for assistance. In rare instances, a report would be considered "unfounded" when there is no evidence to suspect abuse or neglect (i.e., a child reported with a "bruise" turns out to be a birthmark and the household environment appears to be safe and stable). Infants with "inconclusive" or "unfounded" reports will be treated separately in the analyses.

Review of prenatal and delivery records
Information about psychosocial and environmental factors associated with child abuse or neglect was obtained primarily from the birth certificate record, the *Initial Combined Assessment*, and other obstetric forms used routinely to assess risk factors throughout the pregnancy or during delivery. Information was collected on indicators which have been identified in previous studies as potential risk factors for early child abuse or neglect.

Birth certificate records
Complete recording of core data on the birth certificate records is mandated by law and is carefully screened for accuracy by vital records statisticians.

Prenatal and perinatal indicators obtained from birth certificate records (see Appendix):

Infant birth weight and gestational age
Infant sex
Mother's and father's race and ethnicity
Mother's and father's years of education
Mother's marital status at time of birth
Mother and father's countries of origin
Month of pregnancy that prenatal care began and total number of prenatal visits
Number of previous births
Medical conditions of the infant identified at birth

Prenatal and/delivery records
Most providers in Yolo County who serve low-income pregnant women participate in the state Comprehensive Perinatal Services Program (CPSP). In addition to regular prenatal health care, providers are required to conduct a comprehensive risk assessment of all

pregnant women at the initial prenatal visit and conduct re-assessments during the second and third trimesters of pregnancy and during the postpartum examination. Medi-Cal providers are provided an added financial incentive for completing this standardized risk assessment at the initial prenatal visit (see appendix: *Initial Combined Assessment*).

Prenatal indicators obtained from the *Initial Combined Assessment*:[1] (See Appendix)

Mobility, moving in the last year
Number of adults and ages of children living in the household
Children of either parent who are living with someone else
Father's expected financial support for the mother and infant
Dependence on public assistance
Lack of adequate food or clothing
Unstable or transient housing
Pregnancy is planned
Considering adoption or abortion for this pregnancy
Mother and father's attitude toward the pregnancy
Mother's feeling of control of important things in life
Problems related to finances
Problems related to illness, divorce, death, legal or immigration
Dealing with disagreements with partner
Fears or is threatened by partner
Physically hit, slapped, kicked or hurt within the last year
History of childhood abuse
Parent (of mother) who was a victim of violence
History of depression
Planned or attempted suicide
Smoking anytime while pregnant
Level of alcohol used anytime while pregnant
History of using street drugs
Partner's use of alcohol or drugs creating problems
Preferred language
Mental, emotional or physical conditions affecting learning

Re-Assessments: Prenatal documentation re-assessing the indicators was examined to note changes to indicators assessed during the initial visit, new disclosures or additional explanations. Although most providers used the structured measure for the first prenatal risk assessment, providers documented re-assessments with an open-ended format of narrative notes. Providers used separate pages designated for this purpose or the standardized Hollister Maternal/Newborn Record System which included both close-ended questions and narrative explanations. The Hollister Maternal/Newborn Record System assessment included specific questions about planned pregnancy, smoking, alcohol use, drug use, childhood abuse and domestic violence. (see Appendix: Hollister Maternal/Newborn Record System). The Hollister Maternal/Newborn Record System

[1] Information about other indicators that have been associated with child maltreatment, such as the mother's attitudes about parenting and discipline and her own relationship with her primary caregiver during childhood, are not included in prenatal assessments and cannot be addressed in this study.

was used in the majority of clinics but, because of the relatively high cost of these multi-page forms, some facilities developed their own obstetric forms.

Hospital records: Prenatal records were available for most of the mothers who received their prenatal care within the county or at large institutions that provided both prenatal care and delivery at the same location. For those residents who received their prenatal care with individual providers in multiple locations out-of-county, hospital records were reviewed. Although a copy of the prenatal record is routinely sent to the hospitals before or at the time of delivery, documentation of prenatal care assessments found in hospital files are often incomplete. One out of five records reviewed in our study had incomplete information about psychosocial and environmental indicators, the majority of which were hospital records. The records for mothers of children reported to child welfare which were out-of-county were more likely to have incomplete data.

Births not included in the study: Only low-income mothers with Medi-Cal funded prenatal care were included in the study. Mothers with private insurance or other governmental health insurance were excluded because of the lack of a common comprehensive risk assessment used by all private providers. Also excluded were the small number of mothers (2%) who had no prenatal care or had no health insurance. Health care agencies strongly encourage and often assist low-income pregnant women without insurance to apply for Medi-Cal.

Selection and review of prenatal and/or delivery records
All available prenatal and/or delivery records (96%) for mothers of infants referred to child welfare services, including both substantiated and unsubstantiated reports, were reviewed for risk factors related to child maltreatment.

Nearly three-quarters (72%) of the records of mothers whose infants had no report of maltreatment during this study period were selected for review. Because of the difficulty of accessing the records of mothers who obtained prenatal care out-of-county or with private providers, a sampling of records was randomly selected for review for this group. There was no evidence that the sample of prenatal records excluded from review were mothers whose infants were at greater or lesser risk for abuse or neglect. There was no difference in mother's median age, time of entry into prenatal care or proportion of mothers who were foreign-born. Mothers of infants born out-of-county were more likely to have been married, had fewer children and had on average, more years of education. Residents from West Sacramento or Davis were under-represented while Hispanic infants were over-represented among those records included in our review.

Protocols for protecting patient confidentiality
After matching the infants' names to those reported in the child welfare system, the principal investigator assigned a randomly generated record number to each infant file and removed all personal identifiers. The identification number assigned to the infant was also stamped on the mother's prenatal data abstraction form. Nurses, doctors and midwives who were recruited and paid to abstract data from prenatal and/or delivery records, were given identifying information to select patient charts at their facility along with the data abstraction forms with the matching infant-mother identification number. Once the mother's record was reviewed, the data abstraction form with the infant-mother

identification number was returned to the principal investigator. No personal identifiers for the mother or infant were retained.

Protocols for coding risk

Yolo County Comprehensive Perinatal Services Program staff and obstetric providers from the various facilities where mothers received their prenatal care were recruited to assist with record reviews. All abstractors were familiar with the Comprehensive Perinatal Services Program charts. Information was abstracted verbatim from the *Initial Combined Assessment* and standardized close-ended questions used on the Hollister Maternal/Newborn Record System or other hospital admission forms. Narrative comments were abstracted verbatim when possible or summarized in phrases using the language of the health care provider. Reviewers were unaware of which infants were reported to child welfare services except if noted in the perinatal records.

All records had only the randomly assigned identification number with all personal identifiers having been removed, once the charts were reviewed. Two senior undergraduates from the University of California were recruited to collate the information and help code narrative comments. A reported change in risk status from early pregnancy to the time of birth may indicate more truthful disclosure about a sensitive item that was previously denied (i.e., domestic violence), improvement (i.e., moving from a resident hotel to more stable housing) or worsening (i.e., becoming homeless or losing employment). Because we could not ascertain for all records whether risk factors persisted or were ameliorated, each indicator was coded as "present" if it was *ever* documented in the perinatal record, "absent" if documented as never a risk for this mother, or "missing" if no information about this indicator was documented anywhere in the record. Written protocols were developed to assign affirmative and negative answers and ambiguous answers were reviewed together with the principal investigator. The principal investigator once again reviewed the coding for each record before entering the data into a computerized database.

A few items were quantitative variables such as age, number of previous children, mother's years of education, infant birth weight and gestational age, month of entry into prenatal care and number of prenatal visits. Most items on the risk assessment were nominal variables and were categorized as absent or present.

Statistical analyses

The outcome indicator of interest was reported abuse or neglect, recorded in the California child welfare services statewide database. The data were categorized into four different outcomes: substantiated reports of abuse or neglect combined; substantiated neglect only; substantiated abuse only; and "inconclusive", where there was a investigation for suspected abuse or neglect but evidence was unsubstantiated. Child neglect is separated into the following categories: general neglect, caretaker absence or incapacity or severe neglect. Child abuse is separated into the following categories: physical abuse, sexual abuse, emotional abuse and risk of abuse.

Chi-square analyses and t-tests were done to identify individual risk factors significantly associated with a substantiated abuse or neglect. Chi-square and probability values were based on the Yates Corrected chi-square statistic or the Fisher exact statistic in the EPI INFO 6.04d Statistical and Database Program.

Multivariate logistic regression to identify predictors of substantiated abuse or neglect
Multivariate logistic regression analyses were done to identify the indicators most significantly associated with early child abuse and neglect. The parameters are logarithms of odds ratios of predicted probabilities for specific indicators while taking into account the function of other indicators that could also have an effect on the outcome and/or interact with the indicator of interest. The logistic regression analyses provided odds ratios with chi-square values and probability estimates (p-values) regarding the "odds" or likelihood that the identified indicators are likely to be present among families whose infants are subsequently reported for abuse or neglect. The probability value, or p-value, associated with a significance test provides information about the probability of observing the data if the null hypothesis was true – that there was no difference between these two groups.

Demographic data and information about prenatal care utilization and health indicators for the infant at birth obtained from the birth certificates were available for nearly all records. Information about smoking, alcohol and drug use is included on a variety of obstetric forms and was more likely than other psychosocial and environmental indicators to be assessed and recorded. Missing data for other indicators appeared to be random. However, most statistical procedures would have excluded observations with any missing values from the analysis. By excluding incomplete records, the model used for analyses ignores systematic differences between the complete cases and incomplete cases, reduces the number of observations in the analyses but it is assumed that the results using the reduced dataset applies to the whole population (Imrey, 2000; Shafer, 1996). Because of the concern that high risk mothers may be more likely to miss prenatal appointments and/or not complete all the required forms, I was reluctant to settle for multivariate analyses which excluded any perinatal record that did not have data for each and every variable of interest.

Multivariate analyses using multiple imputation of missing values
With the aid of a senior statistician at the University of California at Davis mathematics department, we chose to use the SAS release version 8.2 with the MI procedure to perform multiple imputation of missing data. Simple imputation substitutes a value for each missing value to create a complete data set. Each missing value can be imputed with the variable mean of the complete cases or for nominal values, a mean based on decimal values between 0 (absent) through 1.0 (present). The relatively new multiple imputation (MI) technique does not attempt to estimate each missing value with a single simulated value but to provide more valid statistical inferences that reflect the uncertainty associated with the missing observations (Shafer, 1996; SAS Institute, 2001).

As recommended by the SAS MI program, multiple imputations analyses in a series of five repetitions were done to replace or "impute" each missing value with a set of plausible values and to provide confidence intervals defining the range that included the correct value. A stepwise selection process was used whereby after entry of a new

variable into the model, chi-square statistics for all predictors in the new model are re-calculated. The predictor with the highest p-value above a specified criterion ($p<.05$) is removed from the model and this is repeated with each variable, retaining variables that show significance below the set criterion.

Results will be presented for multiple imputation analyses, providing instead of a single number, a series of odds ratios reported for each variable in the different analyses. These models will also provide a probability value for correctly categorizing infants who had substantiated abuse or neglect (sensitivity), correctly categorizing those infants with no report of child maltreatment (specificity), incorrectly categorizing infants as maltreated among those who never had a report to child welfare services (false positive) and incorrectly categorizing as free of maltreatment those infants with a substantiated report of abuse or neglect (false negative).

"Inconclusive" reports of abuse or neglect

Previous studies of prenatal risk factors have found varying degrees of predictability for abuse and neglect. Between 40-60% of preschool age children with a previously unsubstantiated report of child abuse or neglect are later found to have substantiated evidence of abuse and neglect by age eight (Kotch, Browne, Dufort, Winsor & Catellier, 1999). Two separate analyses were done using first the outcome variable of infants with substantiated maltreatment, and second, including only those infants for which an "in-person" investigation was conducted but the evidence that abuse or neglect occurred was "inconclusive".

Limitations of the study

Abused or neglected children who remain unidentified, or who are known to other service providers but never reported to the child welfare system, will be included among those children categorized as having no reported abuse or neglect. It is estimated that up to 70% of abused or neglected children remain unidentified. It is more likely that infants be misclassified into the "no report" group than the group with substantiated child maltreatment.

Patients may be reluctant to answer questions truthfully regarding illegal activities, socially unacceptable or uncomfortable subjects. On the other hand, medical providers have contact with their prenatal patients on six to twelve times during the pregnancy and thus may be more likely to develop a level of trust for more accurate disclosure of risks during repeat visits. In addition to medical providers, health educators and social workers may provide more accurate assessments of psychosocial indicators.

Chapter IV: Results

Birth records for 839 infants from this study cohort were matched against the California statewide database of reported child abuse or neglect in January 2001 when infants were between 18 and 30 months old.

Characteristics of infants who experienced abuse or neglect

One hundred-fifty infants (18%) had been referred to child welfare services in California for suspected abuse or neglect within their first two years of life. Fifty-five (6.6%) had one or more substantiated incidents of child abuse or neglect. For another 60 (7.2%) children, evidence of abuse or neglect was determined to be "inconclusive". In 35 cases, the report was unfounded. All prenatal and/or delivery records for mothers of infants referred to child welfare services were selected for review of risk factors; seven records (5%) were not found (see Table 2)..

Table 2: Records available for Medi-Cal funded births in Yolo County
June 1, 1998 – May 31, 1999

		Child Welfare Reports of Abuse or Neglect			
		No Report	Substantiated	Inconclusive	Unfounded
All Births	839 (100%)	689 (82%)	55 (6.6%)	60 (7.2%)	35 (4.2%)
Birth certificate records available	839	689	55	60	35
Prenatal/delivery records reviewed	637	494	53	58	32

Categories of abuse or neglect: Forty infants (73%) had substantiated incidents of neglect, 12 (22%) had substantiated abuse and 3 children (5%) experienced both types of maltreatment. Thirty-one (48%) of the infants experienced general neglect, seven (11%) severe neglect and in eleven cases (17%), the primary caretaker was absent or incapacitated. Three (5%) infants were physical abused, eight (13%) were at imminent risk of physical abuse and three (5%) were emotionally abused. Thirty-one, or just over half of the infants, were reported for multiple categories of maltreatment although not all of the allegations were substantiated.

Gender: Thirty-one of the infants with substantiated maltreatment were male and 24 were female. Nearly equal numbers of males and females were neglected. However, of the 14 infants who were abused, 9 (64%) were male. The average age for a substantiated incident was 6.5 months of age for males and 9.9 months of age for females.

Age at time of report: Three-quarters of the children who were abused or neglected were reported by age one with 40% of cases reported within the first month of life. The mean age for the first substantiated incident of neglect was 7.3 months of age. The mean age for the first substantiated incident of abuse was 10.8 months old.

Primary reporters: Cross-reporting by multiple agencies, such as law enforcement and medical staff, was common. Of all of the reporters identified, the primary persons to report abuse or neglect for this age group were medical or hospital staff (17%), law enforcement, probation or judges (13%), child welfare staff (9%), social workers from other agencies (9%), counselors (8%), public health nurses (8%) and school staff (6%). Eight percent of the referrals were made by relatives of the family, 4% by neighbors or landlords and 17% were made by other categories of reporters or the reporter was not identified. Other reporters included child care workers, other governmental agency staff and in one case, a university researcher.

Multiple referrals to child welfare: Forty-two percent of all the children referred to child protective services had more than one referral within these first two years of life. Nearly one-third (31%) of the children with a substantiated incident of abuse or neglect had one or more previous reports to child welfare that had not been substantiated at the time of the earlier investigation.

Substance abuse and spousal violence: Although evidence of substance use and domestic violence is commonly assessed during an investigation of child abuse or neglect, documentation of these findings was incomplete. Nearly one quarter of the families of infants investigated for suspected abuse or neglect had a history of spousal violence documented in the investigation with no significant difference between substantiated and "inconclusive" cases. However, 60% of the families of infants with substantiated maltreatment had documentation of substance abuse compared to 32% of families where the report was not substantiated.

Differences between the substantiated and "inconclusive" cases: Nearly equal numbers of males and female infants reported to child welfare had "inconclusive" evidence of abuse or neglect. Nearly half (40%) of the infants with a substantiated report of maltreatment were referred to child welfare services in the first month of life compared to 25% of infants with "inconclusive" findings. Similar to substantiated cases, about half (48%) of the infants with "inconclusive" findings had been investigated for general neglect. Incidents of severe neglect, caregiver absence or incapacity and risk of physical abuse for infants were more likely to be substantiated. Incidents of emotional abuse and physical abuse directed at the infant were more likely to be found "inconclusive". Although none of the incidents were substantiated, there were five reports of suspected sexual abuse or risk of sexual abuse and two incidents of exploitation among infants in this age group.

There were no differences in substantiation rates for referrals made by medical providers, law enforcement persons or child welfare workers. Unsubstantiated or "inconclusive" reports were more likely to have been generated by neighbors or relatives or landlords (19%) compared to substantiated reports (12%).

Risk factors: Analyses of individual risk factors assessed during pregnancy

Of the 839 infants born during this study period, prenatal and/or delivery records were reviewed for 637 (76%) of their mothers. Chi-square analyses (2 X 2 tables with 1 degree of freedom) were done first to identify the prevalence of individual risk factors that was statistically different between mothers whose infants were abused and neglected and mothers whose infants had no referral to child welfare services for abuse or neglect (see Table 3).

Table 3: Individual risk factors that differed between mothers of abused or neglected infants and mothers whose infants had no report of maltreatment during the first two years of life.

Risk Factor	No report	Abused or Neglected	Chi-sq (1 df)	P-value
CHILD CUSTODY				
Dependent child not living with parents	27 (8%)	21 (65%)	82.9	<0.001
Dependent children living w parent(s)	318	11		
ALCOHOL OR DRUG USE				
Past or current drug use	96 (24%)	34 (69%)	42.4	<0.001
Denied ever using street drug	309	15		
Prenatal alcohol use >monthly	40	16	21.1	<0.001
Denied alcohol use during pregnancy	362	30		
Prenatal drug use or positive drug test	11	12	11.1	0.001
Prenatal drug use denied or never noted	135	31		
Father's alcohol/drug use creates problems	48 (14%)	9 (36%)	6.8	0.001
Mother denies father's problems with substances	291	16		
SMOKING				
Smoked during pregnancy (even if quit)	60	20	23.0	<0.001
Denied smoking	382	28		
PERSONAL VIOLENCE				
History of personal violence	95 (24%)	28 (65%)	30.1	<0.001
Denied personal violence	298	15		
Currently afraid or threatened by partner	24	7	7.2	0.001
Denied being threatened by partner	381	27		
Parent was a victim of violence	33	8	6.8	0.01
Denied parent violence	329	23		
CHILDREN				
4 or more children	89 (13%)	19 (35%)	22.5	<0.001
< 4 children	600	36		
Two children < 6	46 (11%)	15 (36%)	18.6	<0.001
One or no child <6	378	27		
HOUSING OR FINANCIAL PROBLEMS				
Current housing problems	63	17	16.5	<0.001
Denies housing problems	312	20		
Current financial problems	121	22	13.3	<0.001
Denies financial problem	257	11		

Risk Factor	No report	Abused or Neglected	Chi-sq (1 df)	P-value
Receiving AFDC	96	19	12.7	<0.001
Not receiving AFDC	318	18		
Father will not provide financial support	59	11	4.8	0.03
Father will provide financial support	313	23		
MARITAL STATUS				
Unmarried	291 42%)	37 (69%)	14.3	<0.001
Married	393	17		
ETHNICITY				
Non-Hispanic	245 (36%)	36 (65%)	18.1	<0.001
Hispanic	444	19		
LANGUAGE				
English preferred	195 (45%)	34 (79%)	16.9	<0.001
Other language preferred	239	9		
JAIL, PROBATION, PAROLE				
Mother or father on probation/parole/jail	31 (9%)	10 (30%)	13.1	<0.001
No criminal history reported or noted	330	23		
FATHER (FOB) INVOLVEMENT				
FOB not involved or poor communication with FOB	102 (29%)	20 (59%)	11.5	<0.001
Denies poor communication or conflict with FOB	251	14		
MATERNAL LEARNING PROBLEMS				
Mother's physical, mental or emotional problems affect learning	17 (6%)	10 (34%)	25.3	<0.001
No maternal learning problems noted	282	19		
MATERNAL MENTAL HEALTH				
Mother ever gets depressed	202	26	7.3	0.01
Mother denies ever getting depressed	181	7		
Planned or attempted suicide	28 (8%)	7 (24%)	7.0	0.01
Denies history of suicide plans	335	22		
INFANT MEDICAL CONDITION				
Medical condition at birth	20 (3%)	6 (11%)	7.5	0.006
No condition noted	669	49		
ATTITUDE TOWARDS PREGNANCY				
Considered adoption or abortion	16	5	4.7	0.03
Never considered adoption or abortion	368	31		
Father feels negative towards pregnancy	29	7	5.6	0.02
Father not negative towards pregnancy	344	25		
MEAN NUMBER OF RISK FACTORS (t-test for comparing means)	**0= 5.4**	**0 = 10.6**	**7.7**	**0<.001**

Mothers of abused or neglected infants reported on average 10.6 risk factors, <u>double</u> the 5.4 risk factors reported by mothers whose children had no report to child welfare services in California.

Child custody: Mothers and/or fathers of abused or neglected infants were significantly more likely (66%) to have a child living out of the home with other than a biological parent or to have lost all custody of child compared to mothers of infants with no report of maltreatment (8%).

Substance use: Over one-third (35%) of the mothers of maltreated children reported alcohol use during pregnancy compared to only 10% of the mothers whose infants had no report. Over two-thirds (69%) of mothers of maltreated infants ever used street drugs compared to 24% of those whose children had no report. Smoking during pregnancy, even if the mother quit, was significantly more likely (42%) among those with abused or neglected infants than those with no report (14%).

Personal violence: Mothers of abused or neglected infants were significantly more likely to have been victims of personal violence (65%) or reported that they feared or felt threatened by their partner (21%) than mothers whose infants had no report of maltreatment (24% and 6%, respectively).

Family Composition: Mothers of abused or neglected infants were more likely to have four or more children (35% vs 13%), including two young children under age six at the time of this birth (36% vs 11%), and more likely to report current financial (65% vs 32%) or housing problems (46% vs 17%) than mothers of infants with no report of maltreatment. Over two-thirds (67%) of the mothers of abused or neglected infants were unmarried compared to 42% of mothers whose infants had no report of maltreatment.

Ethnicity: More than two-thirds (86%) of the Hispanic mothers were born outside the United States. Infants born to Hispanic mothers and foreign-born mothers were significantly less likely to experience abuse or neglect than those infants born to mothers who were non-Hispanic White, African-American, Asian or Native American. Foreign-born Hispanic mothers were just as likely to report a dependent child living out of the home or with other relatives but were less likely to report risk factors related to smoking, alcohol or drug use, current or past personal violence or parents who experienced violence or an unplanned pregnancy.

Mental health or learning disabilities: Mothers of abused or neglected infants were significantly more likely (34% vs 6%) to have “physical, mental or emotional health problems such as ADD or depression that may affect learning” than mothers of infants with no report of maltreatment. Although half (53%) of mothers of infants with no record of maltreatment self- reported “ever being depressed”, this was significantly lower than the 79% of mothers of abused or neglected children who were ever depressed. One out of four mothers of maltreated children reported having thoughts of suicide, planned or attempted suicide compared to 8% of mothers of infants with no report of maltreatment.

Other risk factors: Although few (<5%) of the infants in this cohort had a medical condition noted at birth, six of the 55 (11%) abused or neglected infants had medical

problems noted at birth compared to 20 of the 689 (3%) infants with no report of maltreatment. Other risk factors that were significantly associated with later child abuse or neglect include mothers who considered abortion or adoption (14% vs 4%), either parent having a history of jail, probation or parole (30% vs 9%) and mother reporting poor communication with the father during pregnancy or separation by the time of delivery (69% vs 29%).

Individual risk factors that did NOT differ between mothers of abused or neglected infants and those with no report of maltreatment.

Demographic variables such as the sex of the infant, mothers' average age or years of education, racial group or city of residence did not differentiate significantly between mothers of abused or neglected infants and those with no report of maltreatment (see Table 4). Whether the pregnancy was planned, having moved within the last year, use of prenatal care, proportion of low birth weight infants also did not significantly differentiate between mothers of abused or neglected infants and those with no report of maltreatment. Infants whose mothers reported that they were often "not in control" of important life events were no more likely to be abused or neglected than mothers who reported they felt in control of important life events.

Table 4: Individual risk factors that did <u>not</u> differ between mothers of abused or neglected infants and mothers whose infants had no report of maltreatment during the first two years of life.

Risk factor reported by mother (and/or father) of the infant	No report	Abused or Neglected	Chi-sq (1 df)	P-value
INFANT SEX				
Male	364 (51%)	31 (56%)	0.53	NS
Female	352	24		
RACE				
White	621	51	4.72	NS
African-American	15	3		
Asian/Pacific Islander	40	1		
American Indian	12	0		
CITY OF RESIDENCE				
Davis	75 (11%)	5 (9%)	5.5	NS
Woodland	276 (40%)	26 (47%)		
West Sacramento	224 (33%)	20 (36%)		
Other city or town	115 (17%)	4 (8%)		
PRENATAL CARE UTILIZATION				
Started prenatal care: 1st or 2nd trimester	612 (89%)	48 (87%)	0.10	NS
Started prenatal care in 3rd trimester	73	7		
Prenatal care: < 6 prenatal visits	85 (12%)	11 (20%)	0.20	NS
6+ prenatal visits	600	44		
INFANT'S BIRTH				
Low birth weight	34 (5%)	4 (7%)	0.20	NS
Normal birth weight	642	51		
Gestation age under 36 weeks	652	51	0.12	NS
Gestation age 36 weeks or over	25	2		
PLANNED PREGNANCY				
Unplanned pregnancy	246	32	0.10	NS
Planned pregnancy	185	13		
MOBILITY				
Moved within the last year	98	5	1.27	NS
Did not move within the last year	263	26		
CONTROL OF LIFE EVENTS				
Mother "not in control of important life events"	43	7	2.40	NS
Mother in control of important life events	310	22		
MOTHER'S AGE (t-test for comparing mean years of age)	25.5 years	26.4 years	1.02	NS
MOTHER'S EDUCATION (t-test for comparing mean years of schooling)	10.4 years	10.8 years	0.82	NS

Predictors for child abuse or neglect

Multivariate logistic regression analyses were conducted to determine which of the risk factors were predictive of child abuse or neglect. In 141 (22%) records, the information about individual risk factors was incomplete. To include all records, multiple imputation procedures were used to impute missing values. In a stepwise selection process, the various variables were added to the multivariate analyses. Those that were no longer significant were eliminated from the analyses. Only variables that were statistically significant ($p<0.05$) are presented**.**

Imputation of missing values were conducted in a series of multiple analyses (series of five) for determining predictors of abuse or neglect combined and then separately for abuse and for neglect. When we did additional series of multiple imputation analyses, the most frequently appearing risk factors were consistently identified. There was some variation in combinations of risk factors or substitutions of similar indicators (ie., "housing problems" appeared where "crowded households with 6 or more" fell out).

Based on higher incidence rates found in this study for child maltreatment, we used 0.08 as the critical probability level for classifying the risk of child abuse or neglect within the first two years of life. Over 75% of the infants were correctly identified. In multiple imputations, the *sensitivity* rate ranged from 74-79 percent for correctly identifying infants who had substantiated abuse or neglect. The *false negative* rate was 3% for incorrectly classifying an infant who had substantiated abuse or neglect in the group of infants who never were reported to child welfare services. The *specificity* rate for correctly identifying the children with no report to child welfare services within their first two years of life ranged between 75 and 82 percent. However, between 70-75% of the infants with no report to child welfare services were incorrectly classified as *false positive* or predicted to have experienced abuse or neglect during these first two years of life.

Table 5. Risk factors significantly correlated with ABUSE and NEGLECT combined (p<.05)

Odds of infant being abused or neglected	Risk indicator
5 –9 times	Having a previous child living with other than a parent *****
4 – 13 times	Families with two young children already under age 6 and/or total number of children *****
4 – 8 times	Mothers history of using street drugs *****
5 – 7 times	Mothers who were non-Hispanic White, African-American or "other" race *****
3 – 4 times	Maternal physical, mental or emotional problems that could affect learning ***
2 times	Receiving AFDC and/or having financial problems **
4 times	Mother fearful or threatened by her partner *
2 times	Housing problems or crowded households with over six persons *
2 times	Father's problems with substance abuse *
2 times	Parental involved with probation or jail time *

The * denotes the number of times this variable was identified in the multiple imputation analyses

Table 6: Multivariate logistic regression analyses with multiple imputation: Significant predictors for infants with substantiated ABUSE OR NEGLECT (n=53) compared to infants with no child welfare report of child maltreatment (n=494).

		Analyses 1	Analyses 2	Analyses 3	Analyses 4	Analyses 5
Previous child not with parents	*Odds* *(C.I.)* X^2 *p-value*	6.6 (3.2, 13.7) 25.5 p<.0001	5.4 (2.7, 10.7) 22.3 p<.0001	9.1 (4.4, 18.7) 36.1 p<.0001	6.0 (2.9, 12.6) 22.9 p<.0001	7.4 (3.5, 15.6) 27.9 p<.0001
Mother ever used street drugs	*Odds* *(C.I.)* X^2 *p-value*	4.5 (2.1, 9.6) 15.7 p<.001	3.7 (1.8, 7.7) 12.2 p<.0001	3.0 (1.4, 6.3) 8.1 p<.01	2.8 (1.3, 6.1) 6.8 p<.01	2.6 (1.2, 5.6) 5.9 p<.02
Non-Hisp White or African-American	Odds *(C.I.)* X^2 *p-value*	2.4 (1.2, 4.9) 5.8 p<.02	2.6 (1.3, 5.4) 6.8 p<.01	2.2 (1.1, 4.5) 4.6 p<.04	2.8 (1.3, 5.9) 7.5 p<.01	2.7 (1.3, 5.7) 7.2 p<.01
Maternal learning problems	*Odds* *(C.I.)* X^2 *p-value*	3.8 (1.7, 8.5) 10.2 p<.001		3.2 (1.4, 7.3) 8.0 p<.01	3.1 (1.4, 7.3) 7.2 p<.001	
Previous number of children	*Odds* *(C.I.)* X^2 *p-value*	1.2 (1.0, 1.5) 4.0 p<.05	1.3 (1.1, 1.6) 8.9 p<.003		1.4 (1.1, 1.7) 9.4 p<.01	
<u>Two</u> **children under age 6**	*Odds* *(C.I.)* X^2 *p-value*			3.0 (1.3, 6.9) 6.9 p<.01		4.5 (2.0, 10.0) 13.4 p<.001
Afraid or threatened by partner	*Odds* *(C.I.)* X^2 *p-value*		3.5 (1.4, 8.6) 7.5 p<.01			
AFDC or financial problems	*Odds* *(C.I.)* X^2 *p-value*			2.4 (1.2, 4.8) 6.0 p<.02		2.2 (1.2, 4.6) 4.5 p<.04
Crowded household	*Odds* *(C.I.)* X^2 *p-value*	2.4 (1.1, 5.5) 4.4 p<.04				
Father drug or alcohol problems	*Odds* *(C.I.)* X^2 *p-value*				2.2 (1.1, 4.5) 4.6 p<.04	
Parent(s) probation, parole/jail	*Odds* *(C.I.)* X^2 *p-value*					2.2 (1.2, 5.6) 3.9 p<.05
Sensitivity		**79.2**	**75.5**	**77.4**	**77.4**	**73.6**
Specificity		**75.1**	**77.5**	**77.3**	**76.1**	**81.6**

Predictors for child NEGLECT

Additional analyses were done to determine predictors of abuse separate from neglect. Three-quarters (76%) of the children experienced neglect. Indicators significantly associated with substantiated neglect were examined separately from indicators associated with substantiated abuse (Table 7 & 8).

Table 7. Risk indicators significantly correlated with child NEGLECT

Odds of infant being neglected	Risk indicator
5 –9 times	Having a previous child living with someone other than the biological parent *****
3 – 5 times	Mothers history of using street drugs ****
3 – 5 times	Positive drug test ***
3 times	Mothers who were non-Hispanic White, African-American or "other" race ****
3 times	Financial problems **
3 times	Alcohol use during pregnancy at least monthly *
3 times	Living in crowded households with over six persons *
3 times	Mothers reporting ever being depressed *
3 times	Mothers with suicide ideation or history of attempted suicide *
3 times	Father's negative attitude towards the pregnancy *
1.3 – 1.4 times	Total number of children ****

The * denotes the number of times this variable was identified in the multiple imputation analyses modeling

Table 8: Multivariate logistic regression analyses with multiple imputation: Significant predictors (p<.05) for infants with substantiated NEGLECT (n=42) compared to infants with no child welfare report of child maltreatment (n=494).

		Analyses 1	Analyses 2	Analyses 3	Analyses 4	Analyses 5
Previous child not with parents	*Odds*	5.2	4.5	5.0	8.8	5.7
	(C.I.)	(2.4, 11.4)	(2.1, 9.6)	(2.3, 11.0)	(4.2, 18.7)	(2.7, 12.1)
	X^2	16.6	15.6	16.0	32.3	20.5
	p-value	p<.0001	p<.0001	p<.0001	p<.0001	p<.0001
Substance abuse Mother used street drugs	**Odds**	4.4	4.9	2.9		2.7
	(C.I.)	(1.9, 10.6)	(2.3, 11.0)	(1.1, 7.6)		(1.2, 6.4)
	X^2	11.2	16.1	5.0		5.4
	p-value	p<.001	p<.0001	p<.03		p<.02
Positive drug test	*Odds*	3.0		3.1	4.7	
	(C.I.)	(1.3, 7.4)		(1.4, 7.3)	(2.1, 10.3)	
	X^2	6.1		7.2	14.5	
	p-value	p<.02		p<.001	p<.0001	
Mother use of alcohol in pregnancy	*Odds*			2.5		
	(C.I.)			(1.1, 5.9)		
	X^2 *p-value*			4.3 p<.04		
Non-Hisp White or African-American	*Odds*	2.5		2.5	3.0	2.8
	(C.I.)	(1.1, 5.8)		(1.1, 5.8)	(1.4, 6.4)	(1.2, 6.2)
	X^2	4.8		4.5	7.9	6.34
	p-value	P<.03		p<.04	P<005	p<.02
Total number of children	*Odds*	1.3	1.4	1.4		1.3
	(C.I.)	(1.01, 1.6)	(1.1, 1.7)	(1.1, 1.8)		(1.1, 1.6)
	X^2	4.2	10.4	8.7		6.1
	p-value	P<.04	p<.002	p<.004		p<.02
Financial problems	*Odds*				2.6	3.2
	(C.I.)				(1.1, 5.8)	(1.4, 7.3)
	X^2				5.2	8.0
	p-value				P<.03	p<.005
Over 6 persons in household	*Odds*	2.8				
	(C.I.)	(1.1, 7.1)				
	X^2 *p-value*	4.7 p<.04				
Maternal history of depression	*Odds*				2.7	
	(C.I.)				(1.1, 6.5)	
	X^2				4.2 p<.04	
	p-value					
Suicide thoughts or attempts	*Odds*		3.2			
	(C.I.)		(1.4, 7.2)			
	X^2 *p-value*		8.1 p<.005			
Father negative towards pregnancy	*Odds*	3.1				
	(C.I.)	(1.2, 7.7)				
	X^2	5.9				
	p-value	p<.02				

Predictors for child ABUSE

A small (25%) percent of children experienced abuse qor risk of abuse within their first two years of life. Only one risk factor, mother's history of drugs, proved significant for both child abuse and child neglect. In every analysis repeated with imputation of missing values, at least one risk factor related to family violence was significantly associated with child abuse (Table 9 & 10).

Table 9. Risk indicators significantly correlated with child ABUSE

Odds of infant being abused	Risk indicator
5 – 7 times	Mother was a victim of violence ***
8 times	Needs emergency food or other services *
6 times	Mother was physically hurt within the last year *
6 times	Mother's parent was a victim of violence *
5 times	Mothers history of using street drugs *
5 times	Father will not provide financial support to the mother and infant *
4 - 5 times	Families with two children under age 6 **
4 times	One or both parents had a history of jail time, probation or parole *
0.12 times	*Married at time of birth (reduced odds) *

The * denotes the number of times this variable was identified in the multiple imputation analyses modeling

Table 10: Multivariate logistic regression analyses with multiple imputation: Significant predictors for infants with substantiated ABUSE (n=13) compared to infants with no child welfare report of child maltreatment (n=494)

		Analyses 1	Analyses 2	Analyses 3	Analyses 4	Analyses 5
Personal violence						
Mother was a victim of violence	*Odds (C.I.)* X^2 *p-value*	5.3 (1.2,23.8) 4.8 p<.03			6.5 (1.7, 24.2) 7.8 p<.006	4.5 (1.3, 14.8) 5.9 p<.02
Mother was physically hurt in last year	*Odds (C.I.)* X^2 *p-value*		6.1 (2.0, 9.1) 9.9 p<.002			
Mother's parent was a victim of violence	*Odds (C.I.)* X^2 *p-value*			6.6 (2.1,20.7) 10.6 p<.002		
Financial problems						
Father will not provide financial support	*Odds (C.I.)* X^2 *p-value*	5.4 (1.4,20.7) 6.1 p<.02				
Need emergency food or services	*Odds (C.I.)* X^2 *p-value*					8.0 (2.0, 32.9) 8.4 p<.004
Marital status married= reduced odds	*Odds (C.I.)* X^2 *p-value*	0.12 (.03, 0.5) 9.1 p<.003				
Mother ever used street drugs	*Odds (C.I.)* X^2 *p-value*	4.5 (1.1,18.0) 4.5 p<04				
Two children under age 6	*Odds (C.I.)* X^2 *p-value*		4.2 (1.3,13.6) 5.9 p<.02		4.8 (1.3, 15.1) 7.4 p<.006	
Parent(s) in jail, parole or probation	*Odds (C.I.)* X^2 p-value			3.9 (1.2,12.8) 5.2 p<.03		

Infants referred to child welfare but evidence was inconclusive

In addition to the 55 infants for whom abuse or neglect was substantiated, another 60 children were reported for abuse or neglect during their first two years of life but the evidence was "inconclusive". Mothers of infants who were referred to child welfare services but for whom findings of abuse or neglect were "inconclusive", reported on average 7.6 risk factors compared to an average of 10.6 risk factors for those with substantiated maltreatment and 5.4 risk factors for those with no report of maltreatment.

Multivariate analyses with multiple imputation of missing values were also done for just "inconclusive" cases. Risk factors that significantly differentiated between cases with no report of maltreatment and cases that were either substantiated or "inconclusive" included: previous children living with someone other than a parent, non-Hispanic ethnicity, two children under age six, financial problems, mother's learning problems, and fathers' substance abuse. Some risk factors differentiated between families with no report of maltreatment and those reported with "inconclusive" findings of abuse or neglect but were *not* associated with substantiated maltreatment. Risk factors significant ($p<.05$) for only "inconclusive" referrals included mothers who smoked in pregnancy (even if quit), considered abortion or adoption, responded that they had nothing to be happy about during pregnancy and those whose infants had medical conditions at birth. Of the 38 infants with medical problems at birth, 18 (47%) had a referral made to child welfare services, 6 cases were substantiated for child abuse or neglect. In 8 cases, the evidence of abuse or neglect was found to be "inconclusive" and in 4 cases the report was "unfounded" with no evidence that the infant was involved or at risk for maltreatment.

Chapter V. Discussion

Health care practitioners have multiple occasions during the prenatal period to interact with mothers and assess their families' risks and resources for caring for their new infant. As this study has shown, health care providers have amble opportunity to identify major risk factors and patterns of risk factors that are predictive of child abuse and neglect in the early years. Over ninety-five percent of the low-income mothers in our study participated in four or more health care visits during their pregnancy. In addition to meeting with medical providers, pregnant mothers often meet individually with health educators, nutritionists and social workers. Upon admission for delivery, hospital nurses again assess many of these same risk factors related to substance use, family composition and socioeconomic problems. They also have an opportunity to observe how the mother responds and cares for her new infant.

Using information collected from standardized risk assessments done during the prenatal and delivery period, we were able to correctly identify *three-quarters* of the infants who were abused or neglected in their first two years of life. Mothers of abused or neglected infants reported on average 10.6 risk factors, *double* as many risk factors (0 = 5.4) as reported by mothers whose infants had never been referred to child welfare services. Among the cases for which there was no standardized assessments or the risk assessment form was incomplete, mothers of abused or neglected infants had fewer risk factors recorded (0 = 7.8), but still three times the average number of risks as families with no report of maltreatment (0 = 2.3). Similarly, in an on-going study of risk of child abuse and neglect from infancy through age ten, children from families with four or more risk factors were *eight times* more likely to experience maltreatment as families who reported no risk factors (Brown, Cohen, Johnson, & Salzinger, 1998). Heller and her colleagues in their review of research of child maltreatment suggested that "no single factor predicts the outcome of child abuse or neglect as well as the total number of risk factors impacting a given dyad" (Heller, Larrieu, D'Imperio & Boris, 1999).

The risk factors that distinguished between mothers of abused or neglected infants and those with no report of child maltreatment fell into four major categories:1) characteristics of the family composition, economic and housing, 2) parental substance abuse, 3) maternal psychological disorders or learning disabilities, and 4) exposure to family violence and/or parental criminal history.

Our findings also confirm what other studies of child abuse or neglect have found – parental indicators that place the infant at risk for abuse differ to some degree from those for neglect (Berrick, 1997; Altemeier, O"Connor, Vietze, Sandler & Sherrod, 1984; Brayden, Altemeier, Tucker, Dietrich & Vietze, 1992; Brown, Cohen, Johnson & Salzinger, 1998). Maternal history of drug use was one of the few risk factors predictive of <u>both</u> abuse and neglect. This association between drug use and child maltreatment may be due in part to the fact that maternal substance abuse is likely to precipitate a referral to child welfare services, resulting in a higher likelihood of a substantiated case report.

Nearly three quarters of the substantiated reports to child welfare services were related to neglect. Mothers of neglected infants were more likely to have previous children living out of the home, report financial and housing problems during pregnancy, feelings of depression or suicide and disclose that their partners expressed negative feelings towards their pregnancy. Some researchers have suggested that child neglect may involve a greater degree of parental psychopathology than less severe forms of child abuse (Berrick, 1997; Factor & Wolfe, 1990). Compared to children who experience abuse, children who are neglected are 44% more likely to experience a recurrence (U.S. Department of Health & Human Services, 2000). Child neglect is also associated with a higher risk of fatality, and an increased likelihood of having the child permanently removed from the home because of inability of the caregivers to be able to provide adequate supervision and ensure a safe environment (McCurdy & Daro, 1994).

The most common predictor of abuse was maternal exposure to family violence – maternal history of childhood abuse, spousal abuse or witnessing a parent who was abused. Risk of child abuse was also greater if one or both parents had a criminal history. As with neglect, different combinations of risk factors may be predictive of child abuse. In some cases, the significant predictors may be family violence and parental substance use. In other cases, child abuse may occur in the context of multiple stressors related to single parenthood, having several young children, exposure to abuse in childhood and needing emergency food. Similar findings were also reported by using the Child Abuse Potential Inventory (Cadzow, Armstrong & Fraser, 1999). Mothers who were verbally abused by their partners, had elevated depression scales and expressed worries about not having the basic essentials of food or housing were rated at highest risk for child abuse.

No age differences were found between infants who were abused or neglected. However, half of the infants who were put in protective custody for substantiated abuse were determined to be at imminent risk because of documented abuse to a sibling rather than being the victim of direct abuse which may have obscured age differences. Although there were no gender differences for children who were neglected, male infants were more likely to experience abuse than females. This is an important finding for the study of abuse among young children. As a whole, there are usually no significant gender differences reported for incidence of child maltreatment among children, perhaps because of the increased number of females who experience sexual abuse in later childhood or adolescence. However, most of the reports of child maltreatment fail to break down gender by both age group *and* type of maltreatment.

Poverty a significant risk factor for child abuse or neglect

Nearly one out of five infants born to low-income families in this cohort were referred to child welfare services for investigation of suspected child abuse or neglect. Of these, 6.6% infants had substantiated abuse or neglect within the first two years of life, *five times* the rate reported (1.4%) for all children in this age group in California (U.S. Department of Health & Human Services, 2000). In national incidence studies of child abuse and neglect, living in poverty was *the* strongest risk for abuse or neglect. Children living in families with annual household incomes under $30,000 in the mid-1990s were 20 times more likely to experience abuse or neglect in their lifetime as children from families with double that income (Sedlak & Broadhurst 1996).

Dependence on cash assistance, needing emergency food and/or having financial problems during pregnancy were economic risk factors that distinguished between families of abused or neglected infants and those with no report of child maltreatment. Families with Medi-Cal who depend on public cash assistance (AFDC) tend to be even more impoverished and have nearly no earned income or other assets of value compared to Medi-Cal funded families not receiving AFDC.

Previous child not living at home is a "red flag" for child neglect
Sixty-three percent of the mothers in our study had previous births. Among the first-time mothers, it was noted that some of their partners had children from other relationships. A "red flag" for further assessment, infants were 5-9 times more likely to experience maltreatment if there was a previous child living out of the home or the parent(s) had lost all custody rights.

Of the 65 families with children living out of the home, 38 were investigated for suspected maltreatment and for 21 (55%) of these infants, the reports were substantiated. Although there were no child welfare referrals during this study period for the remaining 27 records for which this risk was noted, many of these infants had increased potential for abuse or neglect. These mothers reported on average 10.7 risk factors, similar to the number of risk factors present for infants with substantiated maltreatment. In two-thirds of the families with children living out of the home, mothers reported one or more risks involving physical abuse in the last year, emergency housing needs, a partner in jail, history of street drugs or perinatal alcohol use. In other cases, the potential for abuse or neglect may have been ameliorated through adoption, alternative caregivers or parental participation in helpful services. For example, three mothers reported older children who remained with family members in their country of origin, one mother planned to adopt out her newborn, and two mothers were regularly participating in substance abuse treatment throughout their pregnancy.

Child abuse and neglect closely tied to substance abuse
Infants whose mothers ever used street drugs were 3 to 5 times more likely to experience abuse or neglect than infants of mothers who did not report any drug use. Results of drug testing during pregnancy were available for about one-third of the records reviewed. Of the 22 mothers with positive drug tests, 11 (55%) were reported to child welfare agencies - all were substantiated.

In 1999, it was estimated that between 50-80% of families involved with child protective services had problems with alcohol or other drugs (English, 1999; National Center on Addiction and Substance Abuse at Columbia University, 1999). Preoccupied with the search for drugs, addicted parents are likely to leave their children unattended, divert limited resources to support their drug use and "neglect" the physical and emotional needs of their children (National Center on Addiction and Substance Abuse at Columbia University, 1999). The use of stimulant drugs (i.e., amphetamines) has been shown to increase excitability and irritability and reduce inhibitions among individuals prone to violent behavior, resulting in higher risks for both spousal abuse and child abuse (Mitchel & Savage, 1991).

The odds of child maltreatment attributed to alcohol or drug use in our study were based primarily on some history of substance use. Only one-third of the records had information about *current* drug use, a distinction which would have provided a more accurate assessment of the level of risk due to substance abuse. Where the type of drugs was described, mothers of abused or neglected infants were more likely to have reported some form of amphetamine use (66%) and cocaine (14%) than mothers of infants with no report of maltreatment (43% ever used amphetamines and 9% ever used cocaine). There was little difference in reported history of marijuana use between the two groups.

In addition to maternal substance use, infants whose fathers had alcohol or drug problems were also significantly more likely to be abused or neglected. Not surprisingly, the mother's alcohol use during pregnancy or history of drug use was highly correlated with the father's abuse of drugs or alcohol.

Violence between adults associated with violence against children

The odds of being abused or neglected were three times (2.8) higher for infants whose mothers were exposed to family violence compared to those with no report of maltreatment. Exposure to family violence was also very highly correlated with use of street drugs ($p<0.001$). Spousal abuse and physical child abuse is estimated to co-occur in 40-60% of families (Appel, & Holden, 1998). Witnessing continuing parental violence is defined as a form of emotional abuse yet emotional abuse is one of the least reported forms of child maltreatment and less than 20% of the infants in our study referred for emotional abuse had emotional abuse substantiated. Children exposed to parental violence, perhaps unidentified as victims of abuse themselves, have been found to be at increased risk for developing other psychological and developmental problems (Fergusson & Horwood, 1998; Lieberman & Van Horn, 1998).

Ethnicity as a risk or protective factor in families

Hispanics are the fastest growing population in our country and comprise nearly half (48%) of the young children under age five living in California. The inclusion of Hispanic mothers in our study provides important information about the risk and protective factors present in these young families. Although the majority (59%) of low-income mothers in this county were Hispanic, infants of *non-Hispanic* White and African-American mothers were greatly over-represented among those with substantiated abuse or neglect.

Over two-thirds (68%) of the Hispanic mothers in our study were born outside the United States. In other public health studies of mothers' acculturation and its impact on birth outcomes in California, infants born to non-acculturated mothers were found to have fewer behavioral risk factors than mothers born in this country or foreign-born mothers who lived here for over five years (Zambrana, Scrimshaw, Collins & Dunkel-Schetter, 1997). Infants of mothers whose primary language was other than English, were less likely to have a substantiated report of child abuse or neglect. Foreign-born mothers (primarily Hispanic), were twice as likely to be married and less likely to report financial problems than mothers born in this country. Few (5%) foreign-born mothers drank alcohol during their pregnancy and 4% reported ever using drugs compared to 23% of native born mothers who used alcohol while pregnant and 60% who ever used drugs.

Because abuse or neglect was based on official reports to the child welfare agency, there may exist a reporting bias affecting Hispanic families. Infants of foreign born mothers may have less involvement with public agencies, be less likely to be reported to authorities, and less likely to openly disclose risk behaviors to health care providers. Immigrant families may also be perceived by providers as having extended family systems who could provide assistance to the mother and her newborn.

Maternal physical, mental or emotional disabilities in the context of other stressors
The findings in this study highlight the significant effect maternal physical, mental and emotional disabilities may have on child outcomes in the context of other economic or environmental stressors. The prenatal assessment referred to "mental, emotional or physical conditions that may affect learning" and included mothers with developmental delays, attention deficits, dyslexia, illiteracy or mental health conditions related to bulimia, chronic depression, bipolar conditions and mental confusion. In some cases, providers noted that the father also had developmental delays or mental disabilities.

Having learning disabilities was strongly correlated ($p<0.001$) with reported depression or contemplation of suicide, both of which were predictors of child neglect. Other studies have linked maternal depression with child maltreatment and observed that depressed mothers often displayed a pattern of avoidant behavior, expressing little interest in their child's activities or interacting in a negative or hostile manner (Chaffin, Kelleher & Hollenberg, 1996; Factor & Wolfe, 1990; Kotch, Browne, Dufort & Winsor & Catellier, 1999). Their children were more likely to have difficulties with coping and problem-solving due in part to the lack of parent-child interaction and limited opportunities for learning (Factor & Wolfe, 1990).

Living in crowded households, having several young children at home and large families were also risk factors for child maltreatment. However, these factors were only predictive of abuse or neglect in statistical models that also included other stressors such as family violence and/or substance abuse.

Difficulties in predicting future outcomes

Identifying more at-risk families than are officially reported – a common dilemma for predicting child abuse and neglect
It is difficult to predict outcomes from a single period of time because of the wide range of life events that can influence development over time. Using the information available, we were able to correctly identify over three-quarters of the infants with substantiated abuse or neglect during their first two years of life. However (and this may be the major "however" of the study), similar to other prenatal measures used to predict child maltreatment, many more infants were categorized as having the risk potential for child abuse or neglect than were substantiated within the first two years of life (Altemeir, O'Connor, Vietze, Sandler & Sherrod, 1984; Kotch, Browne, Ringwalt, Stewart, Ruina, Holt, Lowman, & Jung, 1995).

The findings indicate a gradient for child abuse and neglect potential, where the increasing number of risk factors is associated with increasing risk (Brown, Cohen, Johnson & Salzinger, 1998). Twice as many infants were investigated for abuse or

neglect as were substantiated. The mothers of infants with "inconclusive" findings of abuse or neglect in the first two years of life reported on average 7.6 risk factors compared to an average of 10.6 risk factors for those whose infants had substantiated maltreatment and an average of 5.4 risk factors reported by mothers of infants with no record of maltreatment. The infants with "inconclusive" reports whose mothers reported multiple risk factors, may be more likely to be abused or neglected during childhood. It is estimated that between 40-60% of children who had previously unsubstantiated reports eventually have a substantiated case report during their childhood (Kotch, Browne, Ringwalt, Stewart, Ruina, Holt, Lowman, & Jung, 1995; Larner, Stevenson & Behrman, 1998). Many children may remain unidentified until they start school, the primary source for referrals to child welfare services.

Limitations of this study

Although the risk assessment measure was comprehensive, it did not include information about the mothers' attitudes, observed parenting behaviors or informal protective factors, indicators that may more accurately predict potential for child abuse or neglect.

The *Initial Combined Assessment* was developed as a general tool to prompt discussion of sensitive areas of concern and did not discern between current and past exposure to risk or levels of risk. For example, the inability to distinguish between moderate to severe depression and less severe episodes of depression may have underestimated the statistical significance of this indicator. Similarly, drug use was found to be a significant predictor for child maltreatment but the failure to quantify drug use may have reduced our ability to correctly categorize current level of risk. For example, one mother reported "experimenting" with marijuana a few times as a teenager but denied any substance use for over ten years. Another mother continued to use a combination of methamphetamine, cocaine and alcohol while pregnant. Both cases were treated equally for risk related to drug use in the analyses.

The health care providers who conducted the interview with the mothers varied in training and education which affected the consistency with which the data were collected (Wilkinson, Korenbort & Fuentes-Afflick, 1994). In the review of records, we found that some staff completed all questions and provided explanations for answers indicating a likelihood of risk. Other staff conducted a more cursory interview with no explanatory notes and more incomplete answers.

Statistical techniques for imputing missing data

Imputing for missing values in data sets where a large percent of records are incomplete may over-estimate the statistical significance of a particular predictor of child abuse or neglect. In addition, although statistical models can identify which risk factors are associated with the outcome of interest, not all families are subject to the same risks. For example, the number and ages of other siblings and whether a previous child lived out of the home would not be useful predictors for risk of abuse or neglect among families who were both first time parents. A key finding that emerged from this study is the importance of cumulative risks.

In the multiple imputation analyses performed, four factors are consistently identified as significant predictors of abuse or neglect. Other variables are identified multiple times as high predictors but are not present in every analysis. Some variables are identified less frequently. It may well be that other variables may also be identified or that significant variables may appear more frequently if additional analyses are done. The results from these multiple imputation procedures are consistent with the idea that the constellation of variables are more important than the values associated with a single variable.

Implications for assessment, intervention and evaluation

This study has illustrated the need to focus on five major areas that may be useful in implementing interventions for families whose children are at greatest risk for abuse or neglect. Areas of importance include universal assessment of risk during the prenatal period, linking families to available services, expansion of home visiting programs that have been shown to be successful in reducing child abuse or neglect, treatment for parental substance abuse and mental health problems, and evaluation of the effectiveness of services offered.

Assessing psychosocial and environmental risks for all pregnant women
Health care providers participating in the Comprehensive Perinatal Services Program (CPSP) who serve low-income pregnant women are already assessing potential for child abuse and neglect. The majority of Medi-Cal funded providers are using some form of assessment that includes the risk factors identified in this study. Even providers not enrolled in CPSP and those who serve private patients use risk assessments such as the Hollister Maternal/Newborn Record System which include forms that can serve the same purpose (see Appendix for copies of the CPSP *Initial Combined Assessment* and the Hollister Maternal/Newborn Record System). Universal risk assessment for mothers and newborns would ensure that assistance is perceived as routine and would reduce the stigma of targeting individuals who may otherwise refuse participation in voluntary services (Browne & Herbert, 1997; Guterman, 1999).

Linking at-risk families to services available in their community
Half (53%) of children with substantiated abuse or neglect received services and only 14% of children with unsubstantiated reports received services in California in 1999 **(**US. Department of Health and Human Services, Child Maltreatment, 1999). In response to the 1980 Adoption Assistance and Child Welfare Act that required child welfare services to provide services to prevent out-of-home placement of children, an array of parent education and home visiting programs have been implemented. Programs are varied and include a range of community and home-based services offering parenting skills classes, mentoring by community volunteers, therapeutic parent-child interactions, 24 hour respite child care, neighborhood resource centers and preventive health care including family planning. Headstart programs have been expanded to provide educational and supportive services to low-income children and their families starting from birth to school entry. The crucial issue is to link these families to services at the community level, relying on information provided by health care practitioners.

Home visiting programs to provide on-going assistance

Short-term and intensive programs for families referred for child abuse, such as Homebuilders, have been shown to be effective in reducing global stressors through individualized and coordinated intervention of therapy, self-help groups and homemaker services over a six week period (Barton, Baglio, & Braverman, 1994). Long-term home visitation programs delivered in the prenatal period and extending for two years or more were more likely to show success in reducing child abuse and neglect over time (Gomby, Culross & Behrman, 1999). A fifteen year follow-up on the long-term effects of the Nurse Home Visitation Program on child abuse and neglect has shown positive findings for reducing child abuse and neglect, the number of subsequent pregnancies and maternal involvement in criminal behavior (Olds, Eckenrode, Henderson, Kitzman, Powers, Cole, Sidora, Morris, Pettitt & Luckey, 1997). Nurses in this program continue to visit with families for two years to develop problem-solving skills and meet small achievable objectives such as completing their education, finding work and planning for future pregnancies. Such programs need to be replicated in the settings in which this study took place.

Treatment for substance abuse and mental health problems

Up to two-thirds of the parents involved with child welfare services need treatment services for alcohol and drug problems yet less than one-third of these families receive treatment (Larner, Stevenson & Behrman, 1998; National Center on Addiction and Substance Abuse at Columbia University, 1999). It is not uncommon for families to be dealing with concurrent problems of drug addiction, depression and other mental health conditions. Substance abuse and mental health treatment programs can encompass a wide range of services which include living in residential treatment facilities, daily attendance at clinic-based outpatient programs or participation in self-help groups (i.e., Alcoholics Anonymous) that meet several times a week in nearby neighborhood centers.

Evaluation to determine effectiveness of services offered

It is unlikely that one program can match the needs of multi-problem families. Although early evaluation of intensive intervention program showed some successes, further studies found that short-term programs failed for families with chronic substance abuse problems and families with mental and physical impairments (Daro, 1988; National Center on Addiction and Substance Abuse, 1999). Skill building classes and interventions that offer immediate concrete assistance were found to have more impact on engaging high risk families than parent education classes and social support programs alone (Daro, 1988).

In 1997, a critical review of child welfare system was mandated by the California governor's office (California Department of Finance, 1997). Recommendations from this report highlighted the need for systematic evaluation of services provided to families involved with child welfare. The recommendations focused on improving systems for assessing and prioritizing risk potential for families, setting measurable outcomes for children and their families and evaluation of family preservation and home visiting programs to determine the long-term effectiveness of these efforts.

Future research

The results of this study give us a preliminary picture of the relationship between family risk factors and outcomes of child abuse and neglect in the first years of life. To verify

how these risk factors may play out in later years, it would be useful to follow children through the different stages of development in childhood and adolescence.

We should also consider additional research that will provide us with a better understanding of the barriers to effective treatment – not only from the agency point of view but from the point of view of the families for whom these services are intended. Families involved with child welfare services are likely to be resistant and suspicious towards treatment providers, and may live in situations with few natural helpers who can assist them (Thompson, 1995). It would be helpful to know which types of programs, providers and community networks successfully engage and preserve relationships with high risk families and what naturally occurring protective factors may be available to some of these families within their social networks.

We may not be able to ensure the safety of children in every family. However, by doing prenatal and perinatal assessments for all families and identifying those with the greatest potential for abuse or neglect, we can provide an early monitoring system for even those infants who may be best cared for by others. For the majority of families, however, we have an opportunity to provide an array of economic, educational and social services to ameliorate risks and prevent the long-term consequences associated with early maltreatment.

REFERENCES

Aber, J., Allen, J., Carlson, V. & Cicchetti, D. (1989). The effects of maltreatment on development during early childhood: recent studies and their theoretical, clinical and policy implications. In D. Cicchetti & V. Carlson (Eds.). Child maltreatment: Theory and research on the causes and consequences of child abuse and neglect (pp. 570-619). New York: Cambridge University Press.

Ahn, H. (1994). Cultural diversity and the definition of child abuse. In Barth, R., Berrick, J. & Gilbert, N. (Eds.). Child Welfare Research Review, Vol 1. (pp.29-54). New York, NY: Columbia University Press.

Appel, A. & Holden, G. (1998). The co-occurrence of spouse and physical child abuse: A review and appraisal. Journal of Family Psychology, 12(4):578-599.

Altemeier, W., O=Connor, S., Vietze, P., Sandler, H. & Sherrod, K. (1984). Prediction of child abuse: A prospective study of feasibility. Child Abuse and Neglect, 8:393-400.

Ayoub, C. (1999). Understanding developmental pathways in maltreated children and adolescents: Preliminary implications for social competence and learning. Presented at the University of California at Davis Center on Social Sciences and the Law, Overcoming adversity: Child maltreatment, school success, and transition to the workforce, Dec 1999.

Barton, K., Baglio, C.S. & Braverman, M. (1994). Stress reduction in child-abusing families: Global and specific measures. Psychological Reports, 75:287-304.

Belsky, J. (1980). Child maltreatment: An ecological integration. American Psychologist, 35(4):320-335.

Belsky, J. (1984). The determinants of parenting:A process model. Child Development 55:83-96.

Berrick, J. (1997). Child Neglect: Definition, incidence, outcomes. Berrick, J., Barth, R., & Gilbert, N. (Eds.). Child Welfare Research Review, Vol 2. (pp. 1-11) New York, NY: Columbia University Press.

Bolger, K., Patterson, C. & Kupersmidt, J. (1998). Peer relationships and self-esteem among children who have been maltreated. Child Development, 69(4):1171-1197.

Bowlby, J. (1973). Attachment and loss: Vol. I. Attachment. New York: Basic Books.

Brayden, R., Altemeier, W., Dietrich, M., Tucker, D., Christensen, M., McLaughlin, J. & Sherrod, K. (1993). A prospective study of secondary prevention of child maltreatment. Journal of Pediatrics, 122:511-5116.

Brayden, R., Altemeier, W., Tucker, D., Dietrich, M. & Vietze, P. (1992). Antecedents of child neglect in the first two years of life. Journal of Pediatrics 120:426-429.

Bronfenbrenner, U. (1979). Ecology of human development: Experiments by nature and design. Cambridge, MA: Harvard University Press.

Brown, J., Cohen, P., Johnson, J. & Salzinger, S. (1998). A longitudinal analysis of risk factors for child maltreatment: Findings from a 17 year prospective study of officially recorded and self-reported child abuse and neglect. Child Abuse and Neglect 22:1065-1078.

Browne, K. & Herbert, M. (1997). Preventing family violence. New York: John Wiley & Sons

Bugenthal, D., Blue, J., Cortez, V., Fleck, K., Kopeikin, H., Lewis, J. & Lyon, J. (1993). Social cognition as organizers of autonomic and affective responses to social challenge. Journal of Personality and Social Psychology, 64(1):194-103.

Cadzow, S., Armstrong, K. & Fraser, J. (1999). Stressed parents with infants: Reassessing physical abuse risk factors. Child Abuse and Neglect, 23:845-853.

Caldwell, R., Bogart, A. & Davidson, W. (1998). The assessment of child abuse potential and the prevalence of child abuse and neglect: A policy analysis. American Journal of Community Psychiatry, 16:609-624.

California Department of Finance (1997).A performance review:California's child welfare system.

Chaffin, M., Kelleher, K. & Hollenberg, J. (1996). Onset of physical abuse and neglect: Psychiatric, substance abuse and social risk factors from prospective community data. Child Abuse and Neglect 20(3):191-203.

Child Welfare Research Review, Vol 1. (1994). R. Barth, J. Berrick, N. Gilbert (Eds.). New York, NY: Columbia University Press (pp. 29).

Cicchetti, D. (1990). The organization and coherence of socioemotional, cognitive, and reepresentational development: Illustrations through a developmental psychopathology perspective on Down syndrome and child maltreatment. In R.Thompson (Ed.) Nebraska Symposium on Motivation: Vol. 36. Socioemotional development (pp. 259-366). Lincoln: University of Nebraska.

Cicchetti, D. & Lynch, M. (1995). Failures in the expectable environment and their impact on individual development: The case of child maltreatment. In Cicchetti, D. & Cohen, D. (Eds). Developmental Psychopathology: Risk disorder and adaption, 2:32-71.

Coohey, C. (1996). Child maltreatment: Testing the social isolation hypothesis. Child Abuse and Neglect, 20(3):241-254.

CPSP Provider Handbook, Department of Health Services, Maternal Health Branch, 1994.

Crittenden, P. (1985). Maltreated infants: Vulnerability and resilience. J. Child Psychology and Psychiatry, 26(1):85-96.

Crittenden, P. & Ainsworth, M. (1989). Attachment and child abuse. In D. Cicchetti & V. Carlson (Eds.). Child maltreatment: Theory and research on the causes and consequences of child abuse and neglect (pp. 432-463). New York: Cambridge University Press.

Daro, D. (1988). Confronting child abuse: Research for effective program design. New York: The Free Press, Division of Macmillan, Inc.

Daro, D. (1991). Public attitudes and behaviors with respect to child abuse prevention, 1987-1991. The National Committee for Prevention of Child Abuse.

Egeland, B., Hyson, D., Yates, T., & Roisman, G. (1999). A longitudinal study of the developmental consequences of maltreatment. Presented at the University of California at Davis Center on Social Sciences and the Law, Overcoming adversity: Child maltreatment, school success, and transition to the workforce, December 1999.

Egeland, B., Jacobvitz, D. & Sroufe, L.A. (1988). Breaking the cycle of abuse. Child Development, 59:1080-1088.

Egeland, B., Sroufe, LA & Erickson, M. (1983). The developmental consequences of different patterns of maltreatment. Child Abuse and Neglect, 7(4):459-469.

Egeland, B. & Kreutzer, T. (1991). A longitudinal study of the effects of maternal stress and protective factors on the development of high-risk children. In E. Cummings, A. Greene, & K. Karraker, (Eds). Life-span developmental psychology: Perspectives on stress and coping (pp. 61-84). Hillsdale, N.J.:Erlbaum Assoc.

English, D. (1998). The extent and consequences of child maltreatment. The Future of Children, 8(1): 39-53.

Factor, D. & Wolfe, D. (1990). Parental psychopathology and high risk children. In Ammerman, R. & Hersen, M. (Eds.) Children at risk: An evaluation of factors contributing to child abuse and neglect (pp. 171-198). New York: Plenum Press.

Farber, E. & Egeland, B. (1987). Invulnerability among abused and neglected children. In E.J. Anthony & B.J. Cohler (Eds.) The invulnerable child (pp.253-288). NY: Guilford Press.

Fergusson, D. & Horwood, L.J. (1998). Exposure to interparental violence in childhood and psychosocial adjustment in young adulthood. Child Abuse and Neglect 22:339-357.

Furstenberg, F. (1995). Social capital and successful development of at-risk youth. Journal of Marriage and the Family, 57(3):580-592.

Garbarino, J. (1976). A preliminary study of some ecological correlates of child abuse: The impact of socioeconomic stress on mothers. Child Development, 47:178-185.

Gelles, R. (1973). Child abuse as psychopathology: A sociological critique and reformulation. American Journal of Orthopsychiatry, 43:611-621.

Gil, D. (1971). Violence against children. Journal of Marriage & Family, 33:637-657

Giovannoni, J. & Becerra, R. (1979). Defining child abuse. New York: The Free Press, Division of Macmillan Pub., Inc.

Goerge, R. & Wulczyn, F. (Dec 1998- Jan 1999). Placement experiences of the youngest foster care population. Zero to Three Bulletin of National Center for Infants, Toddlers and Families, 19(3):8-13.

Gomby, D., Culross, P. & Behrman, R. (1999). Home visiting: Recent program evaluations – analysis and recommendations. The Future of Children, 9:3-26.

Guterman, N. (1999). Enrollment strategies in early home visitation to prevent physical child abuse and neglect and the "universal versus targeted" debate: A meta-analysis of population-based and screening-based programs. Child Abuse and Neglect, 23:863-890.

Heller, S., Larrieu, J., D'Imperio, R. & Boris, N. (1999). Research on resilience to child maltreatment: Empirical considerations. Child Abuse and Neglect 23:321-338.

Herrenkohl, R.(1990) Research directions related to child abuse and neglect. In Ammerman, R. & Hersen, M. (Eds.) Children at risk: An evaluation of factors contributing to child abuse and neglect (pp. 85-105). New York: Plenum Press.

Herrenkohl, R , Herrenkohl, E.& Egolf (1994). Resilient early school-age children from maltreating homes: Outcomes in adolescence. American Journal of Orthopsychiatry, 64(2): 301-309.

Holden, E.W., Willis, D. & Corcoran, M. (1992). Preventing child maltreatment during the prenatal/perinatal period. In D. Willis, E.W. Holden & M. Rosenberg (Eds) Prevention of child maltreatment: Developmental and ecological perspectives (pp. 17-46), New York: John Wiley & Sons.

Imrey, P. (2000). Poisson regression, logistic regression and loglinear models for random counts. In Tinsley, H. & Brown, S. (Eds.). Handbook of applied multivariate statistics and mathematical modeling. (pp. 391-436). San Diego: Academic Press.

Jaudes, P. & Diamond, L. (1985). The handicapped child and child abuse. Child Abuse and Neglect, 9:341-347.

Kamerman, S. (1998). Child welfare and the under-threes: An overview. Zero to Three Bulletin of National Center for Infants, Toddlers and Families, 19(3):1-7.

Kaufman, J. & Zigler, E. (1987). Do abused children become abusive parents? American Journal of Orthopsychiatry, 57(2):186-192.

Kelleher, K., Chaffin, M., Hollenberg, J. & Fischer, E. (1994). Alcohol and drug disorders among physically abusive and neglectful parents in a community-based sample. American Journal of Public Health, 84:1586-1590.

Kempe, C., Silverman, F., Steele, B., Droegemueller, W. & Silver, H. (1962). The battered child syndrome, JAMA, 181:4-11.

Kempe, R., Cutler, C. & Dean, J. (1980). The infant with failure to thrive. In Kempe, C. & Helfer, R. (Eds.). The battered child, 3rd edition (pp. 163-179). Chicago: University of Chicago Press.

Kotch, J, Browne, D, Dufort, V., Winsor, J. & Catellier, D. (1999). Predicting child maltreatment in the first four years of life from characteristics assessed in the neonatal period. Child Abuse and Neglect, 23(4):305-319.

Kotch, J., Browne, D., Rignwalt, C., Stewart, P., Ruina, E., Holt, K., Lowman, B. & Jung, J. (1995). Risk of child abuse and neglect in a cohort of low-income children. Child Abuse and Neglect, 19(9):1115-1130.

Larner, M., Stevenson, C. & Behrman, R. (1998). Protecting children from abuse and neglect: Analysis and recommendations. The Future of Children: Protecting children from abuse and neglect, 8:4-22.

Lichtensein Phelps, J., Belsky, J. & Crnic, K. (1998). Earned security, daily stress and parenting: A comparison of fie alternative models. Development & Psychopathology, 10:21-38.

Lieberman, A. & Van Horn, P. (1998). Child trauma research project. San Francisco General Hospital, University of California at San Francisco.

Main, M. & Goldwyn, R. (1984). Predicting rejection of her infant from mothers=representation of her own experience: Implications for the abused-abusing intergenerational cycle. Child Abuse and Neglect, 8:203-217.

McCurdy, K. & Daro, D. (1994). Child maltreatment: A national survey of reports and fatalities. Journal of Interpersonal Violence, 9(1):75-94.

McDevitt, S. (1996). The impact of news media on child abuse reporting. Child Abuse and Neglect 20:261-274.

Milner, J, Gold, R., Ayoub, C. & Jacewitz, M. (1984). Predictive validity of the CAP Inventory. J. Consulting & Clinical Psychology, 52(5):879-884.

Mitchell, L. & Savage, C. (1991). The relationship between substance abuse and child abuse. Chicago: National Committee for Prevention of Child Abuse.

Murphy, S., Orkow, B. & Nicola, R. (1985). Prenatal prediction of child abuse and neglect: A prospective study. Child Abuse and Neglect, 9:225-235.

National Center on Addiction and Substance Abuse at Columbia University (1999). No safe haven: Children of substance-abusing parents.

Needell, B., Webster, D., Barth, R., Armijo, M. & Fox, A. (1997). Performance indicators for child welfare in California: 1997. Berkeley, CA: University of California School of Social Welfare, Family Welfare Research Group.

Ney, P. (1988). Triangles of abuse: A model of maltreatment. Child Abuse and Neglect, 12:363-373.

Olds, D., Eckenrode, J., Henderson, C., Kitzman, H., Powers, J., Cole, R., Sidora, K., Morris, P., Pettitt, L. & Luckey, D. (1997). Long-term effects of home visitation on maternal life course and child abuse and neglect. Journal American Medical Association, 278:637-643.

Owens, D. & Straus, M. (1975). The social structure of violence in childhood and appraisal of violence as an adult. Aggressive Behavior, 1:193-211.

Polansky, N., Gaudin, J., Ammons, P. & Davis, K. (1985). The psychological ecology of the neglectful mother. Child Abuse and Neglect, 9:265-275.

Rosenberg, S. & Reppucci, N. (1983). Abusive mothers: Perceptions of their own and their children=s behavior. Journal of Consulting & Clinical Psychology, 51(5):674-682.

Runyan, D. & Zolotor, A. (1999). Maltreatment and early school performance: Lessons from a longitudinal study. Presented at the University of California at Davis Center on Social Sciences and the Law, Overcoming adversity: Child maltreatment, school success, and transition to the workforce, December 1999.

Rutter, M. (1987). Psychosocial resilience ad protective mechanisms. Amer. J. Orthopsychiatry, 57(3):316-331.

Sameroff, A. & Chandler, M. (1975). Reproductive risk and the continuum of caretaking casualty. In F.D. Horowitz, M. Hetherington, S. Scarr-Salapetek & G.M. Siegel (Eds.). Review of child development research V. 4 (pp. 187-244). Chicago: University of Chicago Press.

SAS Institute (2001). Multivariate regression with multiple imputation (MI). www.sas.com

Schneider-Rosen, K., Braunwald, K., Carlson, V. & Cicchetti, D. (1985). Current perspectives in attachment theory: Illustration from the study of maltreated infants. Monographs of Society for Research in Child Development, 50(1-2):194-210.

Seagull, E. (1987). Social support and child maltreatment: A review of the evidence. Child abuse and Neglect, 11, 41-52

Sedlak, A. & Broadhurst, D. (1996). Third national incidence study of child abuse and neglect: Final Report, DHHS, Washington, D.C.

Shafer, J.L. (1996). Analyses of incomplete multivariate data. (pp 129-145). Boca Raton, FL:Chapman &Hall/CRC.

Spinetta, J. & Rigler, D. (1972). The child-abusing parent: A psychological review. Psychological Bulletin, 77:296-304.

Sroufe, L.A. & Waters, E. (1977). Attachment as the organizational construct. Child Development, 48:1148-1199.

Steinberg, L., Catalano, R. & Dooley, D. (1981). Economic antecedents of child abuse and neglect. Child Development, 52:975-985.

Straus, M. & Gelles, R. (1986). Societal change and change in family violence from 1975-1985 as revealed by two national surveys. Journal of Marriage and the Family, 48:465-79.

Thompson, R. (1995). Preventing child maltreatment through social support: A critical analysis. Thousand Oaks, CA: Sage Publications.

Trickett, P. & Sussman, E. (1988). Parental perceptions of childrearing practices in physically abusive and nonabusive families. Developmental Psychology, 24:270-276.

U.S. Department of Health and Human Services, Administration on Children, Youth and Families (2000). Child maltreatment, 1999. Washington, D.C.: U.S. Government Printing Office.

U.S. General Accounting Office (1991). Home visiting: A promising early intervention strategy for at-risk families. Report to the Subcommittee on Labor, Health & Human Services, Education & Related Agencies, Committee on Appropriations, U.S. Senate.

Waldfogel, J. (1998). Rethinking the paradigm for child protection. The Future of Children, 8(1):104-119.

Werner, E. & Smith, R. (1992). Overcoming the odds: High risk children from birth to adulthood. Ithaca, N.Y.: Cornell University Press.

Widom, C. (1989). Does violence beget violence? A critical examination of the literature. Psychological Bulletin, 106(1):3-28.

Wilkinson, D., Korenbrot, C. & Fuentes-Afflick, E. (1994). Nonclient factors in the reporting of prenatal psychosocial risk assessments. American Journal of Public Health, 84:1511-1514.

Wilson, L., Reid, A., Midmer, D., Biringer, A., Carroll, J. & Stewart, D. (1996). Antenatal psychosocial risk factors associated with adverse postpartum family outcomes. CMAJ, 154(6):785-799.

Wolfe, D. (1997). Child abuse: Implications for child development and psychopathology. Thousand Oaks: Sage Publications.

Wolfe, D. (1985). Child abusive parents: An empirical review and analysis. Psychological Bulletin, 97:462-482.

Youngblade, L. & Belsky, J. (1990). Social and emotional consequences of child maltreatment. In Ammerman, R. & Hersen, M. (Eds.) Children at risk: An evaluation of factors contributing to child abuse and neglect (pp. 109-143). New York: Plenum Press.

Zambrana, R., Scrimshaw, S., Collins, N. & Dunkel-Schetter, C. (1997). Prenatal health behaviors and psychosocial risk factors in pregnant women of Mexican origin: The role of acculturation. American Journal of Public Health, 87(6):1022-1026.

Zeanah, C. & Zeanah, P. (1989). Intergenerational transmission of maltreatment: Insights from attachment theory and research. Psychiatry, 52:177-196.

CERTIFICATE OF LIVE BIRTH
STATE OF CALIFORNIA

STATE FILE NUMBER | USE BLACK INK ONLY | LOCAL REGISTRATION DISTRICT AND CERTIFICATE NUMBER

THIS CHILD

1A. NAME OF CHILD -- FIRST (GIVEN) | 1B. MIDDLE | 1C. LAST (FAMILY)

2. SEX | 3A. THIS BIRTH, SINGLE, TWIN, ETC. | 3B. IF MULTIPLE, THIS CHILD 1ST, 2ND, ETC. | 4A. DATE OF BIRTH --- MM/DD/CCYY | 4B. HOUR --- (24 HOUR CLOCK TIME)

PLACE OF BIRTH

5A. PLACE OF BIRTH --- NAME OF HOSPITAL OR FACILITY | 5B. STREET ADDRESS --- STREET. NUMBER. OR LOCATION.

5C. CITY | 5D. COUNTY | 5E. PLANNED PLACE OF BIRTH

FATHER OF CHILD

6A. NAME OF FATHER --- FIRST (GIVEN) | 6B. MIDDLE | 6C. LAST (FAMILY) | 7. STATE OF BIRTH | 9. DATE OF BIRTH

MOTHER OF CHILD

9A. NAME OF MOTHER -- FIRST (GIVEN) | 9B. MIDDLE | 9C. LAST (MAIDEN) | 10. STATE OF BIRTH | 11. DATE OF BIRTH

PARENT'S CERTIFICATION

I CERTIFY THAT I HAVE REVIEWED THE STATED INFORMATION AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE. | 12A. PARENT OR OTHER INFORMANT --- SIGNATURE | 12B. RELATIONSHIP TO CHILD | 12C. DATE SIGNED

CERTIFICATION OF BIRTH

I CERTIFY THAT THE CHILD WAS BORN ALIVE AT THE DATE. HOUR AND PLACE STATED. | 13A. ATTENDANT OR CERTIFIER -- SIGNATURE --- DEGREE OR TITLE | 13B. LICENSE NUMBER | 13C. DATE SIGNED

13D. TYPED NAME, TITLE AND MAILING ADDRESS OF ATTENDANT | 14. TYPED NAME AND TITLE OF CERTIFIER IF OTHER THAN ATTENDANT

LOCAL REGISTRAR

15A. DATE OF DEATH | 15B. STATE FILE NO. (STATE USE ONLY) | 16. LOCAL REGISTRAR -- SIGNATURE | 17. DATE ACCEPTED FOR REGISTRATION

CONFIDENTIAL INFORMATION FOR PUBLIC HEALTH USE ONLY

FATHER

16. RACE | 19. HISPANIC | 20A. USUAL OCCUPATION | 20B. USUAL KIND OF BUSINESS OR INDUSTRY | 20C. EDUCATION - YRS COMPLETED

MOTHER

21. RACE | 22. HISPANIC | 23A. USUAL OCCUPATION | 23B. USUAL KIND OF BUSINESS OR INDUSTRY | 23C. EDUCATION - YRS COMPLETED

24A. RESIDENCE -- STREET, NUMBER, OR LOCATION | 24B. COUNTY

24C. CITY | 24D. STATE | 24E. ZIP CODE

MEDICAL DATA

ENTER THE APPROPRIATE CODE(S) FOR ITEMS 25D AND 28A THRU 31 FROM THE VS10A SUPPLEMENTAL WORKSHEET.

25A. DATE LAST NORMAL MENSES BEGAN | 25B. MONTH PRENATAL CARE BEGAN | 25C. NUMBER OF PRENATAL VISITS | 27. PREGNANCY HISTORY (COMPLETE EACH SECTION)

LIVE BIRTHS (DO NOT COUNT THIS CHILD): NOW LIVING (A) | NOW DEAD (B)

OTHER TERMINATIONS (EXCLUDE INDUCED ABORTIONS): BEFORE 20 WEEKS (0) | AFTER 20 WEEKS (E)

25D. PRINCIPAL SOURCE OF PAYMENT FOR PRENATAL CARE | 26. BIRTHWEIGHT | 29A. METHOD OF DELIVERY

28B. EXPECTED PRINCIPAL SOURCE OF PAYMENT FOR DELIVERY | 29. COMPUCATIONS AND PROCEDURES OF PREGNANCY AND CONCURRENT ILLNESSES | DATE OF LAST LIVE BIRTH (C) | DATE OF LAST OTHER TERMINATION (F)

30. COMPUCATIONS AND PROCEDURES OF LABOR AND DELIVERY | 31. ABNORMAL CONDITIONS AND CLINICAL PROCEDURES RELATED TO THE NEWBORN

A. | 0. | C. | D. | E. | F. | CENSUS TRACT | 32. FATHER'S SOCIAL SECURITY NO. | 33: MOTHER'S SOCIAL SECURITY NC.

VS 10D (REV. 1/95)

PRIVACY NOTIFICATION

This information is collected by the State of California, Department of Health Services, Office of Vital Records and Statistics, 304 S Street, Sacramento, CA 95614, telephone number (916) 322-1356. The information is required by Division 9 of the Health and Safety Code, This record is open to public access except where prohibited by statute. Every element on this form, except items 18 through 23C, 32, and 33, is mandatory. Failure to comply is a misdemeanor. Ths principal purposes of this record are to: 1) Establish a legal record of each vital event; 2) Provide certified copies for personal use; 3) Furnish information for demographic and epidemiological studies: and 4) Supply data to the National Center for Health Statistics for federal reports. Items 32 and 33 are included pursuant to Section 10125 (b) (14) of the Health and Safety Code, and may be used for child support enforcement'purposes, or for linking the birth information database with other databases for statistical and epidemiological purposes.

Definition of Live Birth

'Live Birth' means the complete expulsion or extraction from its mother of a product of conception (irrespective of duration of pregnancy) which, after such separation, breathes or shows any other evidence of life such as beating of the heart, pulsation of the umbilical cord, or defrnrte movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached.

COMPREHENSIVE PERINATAL SERVICES PROGRAM

Name
Birth date
I.D. number
EDD

INITIAL COMBINED ASSESSMENT

PERSONAL INFORMATION

1. Your name: _____
2. Age: ☐ Less than 12 years ☐ 12–17 years ☐ 18–34 years ☐ 35 years or older
3. Place of birth: _____
4. How long have you lived in this area? ☐ Less than 1 year ☐ 1-5 years ☐ 5+ years ☐ Life
5. Do you plan to stay in this area for the rest of your pregnancy? ☐ Yes ☐ No
6. Are you: ☐ Married ☐ Single ☐ Divorced/separated ☐ Widowed ☐ Other: _____
7. Who lives with you in your home?

Name	Relation	Age	Name	Relation	Age

8. Do any of your children or your partner's children live with someone else? ☐ Yes ☐ No ☐ N/A
   If yes, explain: _____

ECONOMIC RESOURCES

9. Are you currently working? ☐ Yes ☐ No If yes, type of work and hours per week: _____
10. Do you plan to return to work after the baby is born? ☐ Yes ☐ No
11. Will the father of the baby provide financial support to you and the baby? ☐ Yes ☐ No
12. Are you receiving any of the following: (Check all that apply.)

	Yes	No	Needs Information/ Referral
a. WIC	☐	☐	☐
b. Foodstamps	☐	☐	☐
c. AFDC	☐	☐	☐
d. Emergency food assistance	☐	☐	☐
e. Pregnancy-related disability insurance benefits	☐	☐	☐

13. Do you have enough clothes for yourself and your family? ☐ ☐
14. Do you or others in your home skip meals due to lack of money? ☐ ☐

HOUSING

15. What type of housing do you currently live in?
    ☐ Apartment ☐ House ☐ Hotel/motel ☐ Emergency shelter ☐ Public housing
    ☐ Trailer park ☐ Car ☐ Farm worker camp ☐ Other: _____

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16. Do you have the following where you live? (Check all that apply.)

	Yes	No		Yes	No		Yes	No
Tub/shower	☐	☐	Stove	☐	☐	Telephone	☐	☐
Electricity	☐	☐	Heat	☐	☐	Hot water	☐	☐
Refrigerator	☐	☐	Toilet	☐	☐	Cold water	☐	☐

17. Do you feel your current housing meets your basic needs? ☐ Yes ☐ No

18. Do you feel safe in your home? ☐ Yes ☐ No

If no, why not? _____

19. If there are guns in your home, how are they stored? _____

TRANSPORTATION

20. Will you have problems keeping your appointments? ☐ Yes ☐ No

If yes, is the problem: ☐ Transportation ☐ Child care ☐ Work ☐ School ☐ Other: _____

21. When you ride in a car, how often do you use seat' bets? ☐ Always ☐ Sometimes ☐ Never

22. Will you be able to get a car safety seat for the new baby by the time it is born? ☐ Yes ☐ No

CURRENT HEALTH PRACTICES

23. Have you ever had trouble finding a doctor or getting necessary treatment for yourself or your family.[7] ☐ Yes ☐ No

If yes, please explain: _____

24. Have you been to the dentist in the last year? ☐ Yes ☐ No

25. What do you do for exercise? _____ How often? _____

26. Since you became pregnant have you used any over-the-counter medications? ☐ Yes ☐ No

If yes, what? _____ How much? _____ How often? _____

27. Since you became pregnant have you used any prescription medications? ☐ Yes ☐ No

If yes, what: _____ How much? _____ How often? _____

28. In your home, how do you store: ☐ Vitamins _____

☐ Medications _____ ☐ Cleaning agents _____

29. Do you have exposure to chemicals:

a. At work? ☐ Yes ☐ No If yes, what? _____

b. At home? ☐ Yes ☐ No If yes, what? _____

c. With hobbies? ☐ Yes ☐ No If yes, what? _____

PREGNANCYCARE

30. Was this pregnancy planned? ☐ Yes ☐ No

31. How do you feel about being pregnant now? _____

32. Are you considering: Adoption? ☐ Yes ☐ No Abortion? ☐ Yes ☐ No

33. How does the father of the baby feel about this pregnancy? _____

a. Your family? _____

b. Your friends? _____

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34. Do you have any of the following problems now? (Check all that apply.)

	Yes	No		Yes	No
a. Swelling of hands or feet	☐	☐	h. Heartburn	☐	☐
b. Constipation	☐	☐	i. Backache	☐	☐
c. Fatigue/sleeping problems	☐	☐	j. Vomiting	☐	☐
d. Vaginal discharge/bleeding	☐	☐	k. Nausea	☐	☐
e. Varicose veins	☐	☐	l. Headaches	☐	☐
f. Hemorrhoids	☐	☐	m. ☐ Other _____		
g. Leg cramps	☐	☐			

35. In comparison to your previous pregnancies, is there anything you would like to change about the care you receive?
☐ Yes ☐ No ☐ N/A Please explain: _____

36. Do you have any traditional, cultural, or religious customs about pregnancy and childbirth you would like supported?
☐ Yes ☐ No If yes, please explain: _____

37. Who gives you the most advice about your pregnancy? _____

38. What have you been told that you think is important? _____

39. Do you use any natural or herbal remedies (example: ginseng, manzanilla, greta, magnesium, yerba buena)?
☐ Yes ☐ No If yes, what and how often: _____

40. Do you plan to have someone with you:
a. During labor? ☐ Yes ☐ No ☐ Do not know
b. When you first come home with the baby? ☐ Yes ☐ No ☐ Do not know

41. If you had a baby before, where was that baby(s) delivered?
☐ Hospital ☐ Clinic ☐ Home ☐ Other _____
Were there any problems? ☐ Yes ☐ No
If yes, please explain: _____

42. Have you had any losses in past pregnancies such as:

	Yes	No		Yes	No		Yes	No
Miscarriages	☐	☐	Adoption	☐	☐	Abortion	☐	☐
Stillborn	☐	☐	SIDS	☐	☐			

If yes, what/who helped you get through this? _____

43. If you have had other children, are they still living? ☐ Yes ☐ No ☐ N/A
If no, please explain: _____

44. Besides having a healthy baby, what are your goals for this pregnancy? _____

45. Do you plan to use a method of birth control after this pregnancy? ☐ Yes ☐ No ☐ Undecided
If yes, what method: ☐ Birth control pill ☐ Diaphragm ☐ Norplant ☐ IUD
☐ Foam and/or condoms ☐ Natural Family Planning ☐ Abstinence ☐ Sterilization ☐ Depoprovera

46. Have you ever had a sexually transmitted infection, such as gonorrhea, syphilis, chlamydia, herpes.3 ☐ Yes ☐ No
a. If yes, what and when: _____
b. Has your partner had a sexually transmitted infection? ☐ Yes ☐ No ☐ Do not know

47. Information given on HIV transmission, risk reduction behavior modification, methods to reduce the risk of perinatal transmission; counseling and referral to other HIV prevention and psychosocial services as needed; and referral for HIV testing. ☐ Yes ☐ No Initials: _____

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NUTRITION

40. Anthropometric data: (Complete the following.) Height _____ Current weight _____ Date _____
☐ Prepregnancy weight _____ ☐ Normal ☐ Underweight ☐ Overweight ☐ Very overweight
☐ Weight gain goal _____ ☐ Net weight gain _____ ☐ Adequate ☐ Inadequate ☐ Excessive
☐ Weight gain in previous pregnancies: _____ lbs ☐ Unknown ☐ N/A o Weight grid plotted

49. Biochemical data: (Complete the following.)
☐ Blood: Date _____ Hgb/Hct _____ MCV _____ Glucose Screen _____
0 Urine: Date _____ (Circle) Glucose + − Ketones + − Protein + −

50. Clinical data: (Indicate if any of the following apply.)
☐ Short pregnancy interval ☐ Anemia ☐ Diabetes: ☐ Prepregnancy ☐ Past pregnancy
☐ Serious infection ☐ Dental disease ☐ Hypertension: ☐ Prepregnancy ☐ Past pregnancy
☐ Hx low birth weight baby ☐ High parity (>4) ☐ Currently breastfeeding
☐ Age 17 years or less ☐ Digestive problems ☐ Hx intrauterine growth retardation
☐ Other medical/obstetrical problems: ☐ Past _____ ☐ Current _____

51. Do you take prenatal vitamins? ☐ Yes ☐ No Do you take iron? ☐ Yes ☐ No Other? ☐ Yes ☐ No

52. How would you describe your appetite? ☐ Good ☐ Fair ☐ Poor
Do you sometimes feel you can't stop eating? ☐ Yes ☐ No

53. Have your eating habits changed since you became pregnant? ☐ Yes ☐ No
If yes, please explain: _____

54. How many times per day do you usually eat? _____
Do you have questions or concerns about your weight and/or weight gain during pregnancy? ☐ Yes 0 No
If yes, please list: _____

55. Have you had cravings for or eaten any of the following? (Circle all that apply.) ☐ Yes ☐ No
laundry starch freezer frost cornstarch clay paste plaster . dirt other _____

56. Do you have any food allergies? ☐ Yes ☐ No If yes, please explain: _____
Are there any foods or beverages you avoid? ☐ Yes ☐ No If yes, please explain: _____

57. Are you on a special diet? ☐ Yes ☐ No
If yes, what kind? ☐ Weight loss ☐ Low salt ☐ Low fat/cholesterol ☐ Vegetarian ☐ Diabetic
☐ Other: _____

58. If vegetarian, do you eat: ☐ Milk and dairy products ☐ Fish/chicken Cl Eggs

59. How many cups of the following do you drink in a day? . regular coffee regular tea sodas

60. Who usually does the following in your home? Buys food: . Prepares food: _____

61. Dietary intake: (check all that apply)

LOW	__ Vitamin A	__ Vitamin C	__ Other fruits and vegetables	__ Bread/grain/cereal		
	__ Protein	__ All groups	__ Fluid	__ Milk	__ Iron	__ Fiber
EXCESS	__ Fat	__ Sugar	__ Salt	__ High Kcal.		

INFANT FEEDING

62. If you have other children, did you breastfeed, or try to breastfeed them? ☐ Yes ☐ No ☐ N/A
Did you have trouble breastfeeding? ☐ Yes ☐ No How long did you breastfeed? _____

63. How are you planning to feed your new baby?
☐ Breast ☐ Formula ☐ Both breast and formula ☐ Other: _____ ☐ Do not know

WIC REFERRAL

_____ _____
Provider signature Date

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COPING SKILLS

64. In the past month, how often have you felt that you could not control the important things in your life?
Have you felt that way: ☐ very often ☐ often ☐ sometimes ☐ rarely ☐ never

65. What things in your life do you feel good about? _____

66. Are you currently having any of these problems: (Check all that apply.)

	Yes	No		Yes	No
a. Financial difficulties	☐	☐	f. Unemployment	☐	☐
b. Housing problems	☐	☐	g. Immigration	☐	☐
c. Divorce/separation	☐	☐	h. Legal	☐	☐
d. Recent death	☐		☐ Probation/parole	☐	☐
e. Illness	☐		☐ Child Protective Services	☐	☐

67. What things in your life would you like to change? _____

68. What do you do when you are upset? _____

69. What do you and your partner do when you have disagreements? _____

70. Do you ever feel afraid or threatened by your partner? . . . . . ☐ Yes ☐ No
If yes, please explain: _____

71. Within the last year have you been hit, slapped, kicked, or physically hurt by someone? . . . . . ☐ Yes ☐ No
If yes, please explain: _____

72. Have you ever been a victim of violence and/or sexual abuse? . . . . . ☐ Yes ☐ No

73. Have your children ever been victims of violence and/or sexual abuse? . . . . . ☐ Yes ☐ No

74. Have your parents been victims of violence and/or sexual abuse? . . . . . ☐ Yes ☐ No

75. Do you ever get depressed? . . . . . ☐ Yes ☐ No

76. Have you ever felt so bad you planned or attempted suicide? . . . . . ☐ Yes ☐ No

77. Have you ever talked to a counselor? . . . . . ☐ Yes ☐ No
If yes, please explain: _____

70. Would you feel comfortable talking to a counselor if you had a problem? . . . . . ☐ Yes ☐ No

TOBACCO, DRUG; AND ALCOHOL USE

79. Do you smoke cigarettes? . . . . . ☐ Yes ☐ No
If yes, how many cigarettes per day? _____ for how many years? _____

80. Are you exposed to secondhand smoke at home or at work? . . . . . ☐ Yes ☐ No

81. Are you using chewing tobacco? . . . . . ☐ Yes ☐ No

82. If you smoke cigarettes or chew tobacco, have you:
☐ Considered quitting ☐ Set a definite date to quit ☐ Decided to cut down ☐ Decided not to quit at this time

83. How often do you drink alcohol (beer, wine, wine coolers, hard liquor, mixed drinks)?
☐ Daily ☐ Weekends ☐ 1–2 times per month ☐ rarely or never

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84. Have your alcohol habits changed since you got pregnant? . . . . . ☐ Yes ☐ No

If yes how? _____

85. Are you interested in stopping or cutting down while you are pregnant? . . . . . ☐ Yes ☐ No

86. **Have you ever used street drugs (marijuana, cocaine, PCP, crack, speed, crank, ice, heroin, LSD, other)?** ☐ Yes ☐ No

a. If yes, what: _____ How often? _____

b. Are you interested in quitting? . . . . . ☐ Yes ☐ No

87. If your partner uses drugs or alcohol, does this create problems for you? . . . . . ☐ Yes ☐ No

EDUCATION AND LANGUAGE

88. **Years of education completed:** ☐ 0–8 years ☐ 9–11 years ☐ 12–16 years ☐ 16+ years

a: Are you **currently** enrolled in school? . . . . . ☐ Yes ☐ No ☐ N/A

b. Will you return to school after the baby is born? . . . . . 0 Yes ☐ No ☐ N/A

89. What language do you prefer to speak: ☐ English ☐ Other _____

90. What language do you prefer to read: ☐ English ☐ Other _____

91. Which of the following best describes how you read:

☐ Like to read and read often ☐ Can read but do not read often ☐ Do not read

EDUCATIONAL INTERESTS

92. Do you have experience with or have you received education in any of the following topics in the past (Column A **Do** you know about?), or would like additional information during this pregnancy (Column B Would you like more information?); both columns may be marked:

TOPIC	COLUMN A Have Previous Experience/ Do You Know About?	COLUMN B Would You Like More Information?
How your baby grows (fetal development)		
How your body changes during pregnancy		
Healthy habits for a heafthy baby		
What you should eat while you are pregnant		
Gaining weight in pregnancy		
What happens during labor and delivery		
What you need to know about **preterm** (premature) labor		
Hospital tour		
How to take care of yourself after the baby comes		
Breastfeeding		
Infant feeding		
Circumcision		
Helping your other children get ready for the new baby		
Information about car seats/passenger safety		
How to take care of your baby and keep it safe		

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93. Will you have any difficulties (language/transportation) scheduling/attending classes?. . . . . ☐ Yes ☐ No

94. Will someone be able to attend classes with you? . . . . . ☐ Yes ☐ No

Who? _____

95. Is there anything special you would like to learn about? _____

96. How do you like to learn new things? (Check all that apply.)

☐ Read ☐ Talk one-on-one ☐ Group education ☐ Pictures and diagrams

☐ Watch a video ☐ Being shown how to do it ☐ Other _____

97. Do you have any mental, emotional, or physical conditions, such as learning disabilities, Attention Deficit 'Disorder, depression, hearing, or vision, that may affect the way you learn?. . . . . ☐ Yes ☐ No

If yes, please explain: _____

In developing a health education plan, also consider:

☐ Does the client have a medical problem or other risk factors related to pregnancy that requires education (i.e., history of genetic disorder, diabetes, previous preten labor, hypertension, etc.)? This information may be obtained from the obstetric medical history form and/or question 50.

Assessment completed by:

Name _____ Date _____ Minutes _____

Title _____

Hollister

Patient's Name ____________________

ID. No. ____________________

Health History Summary

Hollister Maternal/Newborn Record System

To order call:1.800.323.4060 Re-order No. 5700

Cardiovascular (Patient / Family)

- 37. **Heart** Disease ☐ ☐
- 88. Rheumatic Fever. ☐
- 39. Miiral Valve Prolapse ☐
- 40. Chronic Hypertension. ☐ ☐
- 41. Variwsities Thrombophlebiis ☐ ☐
- 42. Previous Pulmonary Embolism ☐
- 43. Blood Disorders ☐ ☐
- 44. Anemia/ **Hemoglobinopathy** ☐ ☐
- 45. Blood Transfusions. ☐

Pulmonary

- 46. **Asthma** ☐
- 47. Tuberculosis ☐ ☐
- 48. Chronic Obstructive Pulmonary Disease. ☐ ☐

Endocrine

- 49. Diabetes ☐ ☐
- 50. Thyroid Dysfunction ☐ ☐
- 51. Maternal PKU ☐
- 52 Endocrlnopathy ☐ ☐
- 53. **Gastrointestinal** ☐
- 54. Llver Disease ☐

Check and detail positive findings below. Use reference number.

Renal Disease (Patient / Family)

55. cystitis

- 56. **Pyelonephritis**. ☐
- 57. Asymptomatic **Bacteriuria.** ☐
- 68. Chronic Renal Disease. ☐ ☐
- 59. **Neurologic/ Seizure** Disorder.. ☐ ☐
- 60. Autolmmune Disease.. ☐ ☐
- 61. **Cancer** ☐ ☐
- 82. Clther ________ ☐

Other

- 63. Psychiatric Disease. ☐ ☐
- 64. Physical Abuse or Neglect. ☐ ☐
- 65. Emotional Abuse or Neglect ☐ ☐
- 66. Addiction (Drug, Alcohol, Nicotine). ☐ ☐
- 67. Major Accidents.. ☐
- 68. Surgery.. ☐
- 69. Anesthetic Complications. ☐
- 70. Non-Surgical Hospitalization. ☐
- 71. **Other** ________ ☐
- 72. No Known **Disease/Problems** ________ ☐

Genetic History*

(Patient / Father of Baby / Family)

- 73. Age ≥ 35 (♀) ≥ 50 (♂) ☐ ☐
- 74. Cerebral Palsy ☐ ☐ ☐
- 75. Cleft Lip/Palate ☐ ☐ ☐
- 78. Congenital Anomalies ☐ ☐ ☐
- 77. Congenital Heart Disease ☐ ☐ ☐
- 78. Consangulhlty ☐ ☐
- 79. **Cystic** Fibrosis ☐ ☐ ☐
- 80. Down's Syndrome ☐ ☐ ☐
- 81. Hemophllla.. ☐ ☐ ☐
- 82. **Huntington's Chorea** ☐ ☐ ☐
- 83. Mental Retardation. ☐ ☐ ☐
- 84. Muscular Dystrophy,. ☐ ☐ ☐
- 85. **Neural Tube Defect** ☐ ☐ ☐
- 86. Sickle Cell Disease or Trait ☐ ☐ ☐
- 87. **Tay-Sachs** Disease., ☐ ☐ ☐
- 88. **Test for Fragile X.** ☐ ☐ ☐
- 89. Thalassemia A or B. ☐ ☐ ☐
- 90. Other ________ ☐ ◆◆
- 91. Other ________ ☐ ☐ ☐
- 92. Other ________ ☐ ◆◆

Historical Risk Status: ☐ No Risk Factors Noted

☐ At Risk (identify):

Signature

Hollister,,

Patient's Name _____

ID. No. _____

Initial Pregnancy Profile

Hollister Maternal/Newborn Record System

To order call: 1.800.323.4060 Re-order No. 5701

History Since LMP

Check and detail all positive findings below. Use reference numbers.

Pregnancy Complications (✓)

1. Vaginal Bleeding ☐
2. Abdominal or Epigastric Pain. ☐
3. Headache/Dizziness ☐
4. Change in Vision ☐
5. Hyperemesis ☐
8. Urinary Complaint ☐
7. Febrile Episode ☐
8. Rash with Viral Illness ☐
9. Physical Trauma or Surgery ☐
10. Other _____ ☐

Exposure To Environmental Teratogens

11. HIV, CMV, HSV, Syphilis ☐
12. Rubella, Varicella ☐
13. PKU ☐
14. Encephalitis ☐
15. Occupational Chemicals.. ☐
(Heavy Metal, Organic Solvent, etc.)
18. Radiation ☐
17. Toxoplasmosis ☐
18. Tuberculosis ☐
19. Other _____ ☐

Substance Use

20. Alcohol ☐
type _____
amt/day _____
21. Tobacco ☐
type _____
amt/day _____
22. Non-Prescribed Drugs ☐
type _____
amt/day _____
23. Prescribed Drugs ☐
type _____
amt/day _____
type _____
amt/day _____
type _____
amt/day _____
24. Street Drugs ☐
type _____
amt/day _____
type _____
amt/day _____

Height	Weight	Pregravid Weight	B.P.	Pulse

Physical Assessment

Check and detail abnormal findings below. Use reference numbers.

System	Normal	Abnormal
25. Skin	☐	☐
26. Neurologic	☐	☐
27. Extremities	☐	☐
28. HEENT/Fundi	☐	☐
29. Mouth/Teeth	☐	☐
30. Neck/Thyroid	☐	☐
31. Breasts/Nipples	☐	☐
32. Cardiovascular	☐	☐
33. Respiratory	☐	☐
34. Abdomen	☐	☐
35. Gastrointestinal	☐	☐
38. Urinary	☐	☐
37. Other	☐	☐

Pelvic Examination

38. Vulva ☐ ☐
39. Vagina ☐ ☐
40. Cervix ☐ ☐
41. Uterus Size ____ Wks ☐ ☐
42. Adnexa ☐ ☐
43. Rectum ☐ ☐

44. Pelvic Type
☐ Gynecoid ☐ Anthropoid
☐ Android ☐ Platypelloid

45. Measurements,
☐ Adequate ☐ Inadequate
☐ Borderline

46. Diagonal Conjugate Reached
☐ Yes ☐ No
____ cms

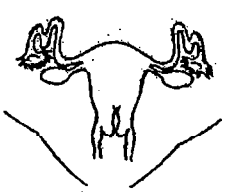
47. Ischial Spines
☐ Average ☐ Prominent
☐ Blunt

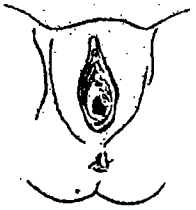
48. Intettuberous Diameter ____ cms

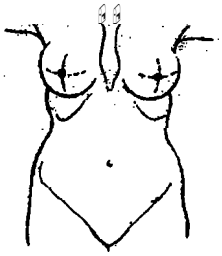
49. Sacrum
☐ Concave ☐ Anterior
☐ Straight

50. Coccyx
☐ Moveable ☐ Malpositioned
☐ Fixed

51. Pubic Arch
☐ Normal ☐ Narrow
☐ Wide







Examined by _____

Date ___/___/___

HOLLISTER
maternal/newborn
RECORD SYSTEM

Initial Lifestyle Profile

Patient's Name _____

ID. No. _____

Nutritional Assessment

24 Hour Diet History

Usual Pattern ☐ No ☐ Yes

Eating Disorder ☐ None ☐ Anorexia ☐ Bulimia ☐ Pica

Breakfast	Lunch	Dinner	Snacks
Fluids:	Fluids:	Fluids:	Fluids:

	No	Yes	
Special Diet	☐	☐	
Food Intolerance	☐	☐	
Vitamin/Mineral Supplement	☐	☐	
Other _____	☐	☐	

Nutritional Habits	No	Yes	Frequency/Amount
Artificial Sweeteners	☐	☐	
Caffeine	☐	☐	
Excessive Vitamin Intake	☐	☐	
Raw Meat/Fish	☐	☐	

Activity Assessment

	No	Yes
1. Job Outside Home	☐	☐
2. Work At Home	☐	☐
3. Travel/Commuting	☐	☐
4. Exercise	☐	☐
5. Leisure Activities	☐	☐
6. Other _____	☐	☐

Comments

Sexuality Assessment

7. Partners ☐ None ☐ One ☐ Many

8. Physical Changes ☐ None (identify) _____

9. Psychological Changes ☐ None (identify) _____

Psychosocial Assessment

Emotional Status ☐ Happy ☐ Ambivalent ☐ Anxious ☐ Depressed ☐ Angry

Basic Needs Met	Yes	No
10. Housing	☐	☐
11. Clothing	☐	☐
12. Food	☐	☐
13. Finances	☐	☐
14. Transportation	☐	☐
15. Ability to Read/ Communicate	☐	☐
16. Other _____	☐	☐

Life Stress

17. Free From Apparent Abuse (physical, emotional)	☐	☐
18. Major Change	☐	☐
19. Serious Illness or Death	☐	☐

Life Stress (Cont'd.)	Yes	No
20. Other _____	☐	☐

Social Support

21. Biological Father Involved	☐	☐
22. Others Available	☐	☐

Adaptation to Pregnancy

23. Planned Pregnancy	☐	☐
24. Self Care Needs	☐	☐
25. Other _____	☐	☐

Other

26. _____	☐	☐
27. _____	☐	☐

Initial Lifestyle Risk Status ☐ No Risk Factors Noted ☐ At Risk (Identify)

Signature _____

Date - - -