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UNIVERSITY OF SAN DIEGO

SCHOOL OF EDUCATION

CALIFORNIA AFRICAN-AMERICAN INFANT MORTALITY PREVENTION

A PROSPECTIVE STUDY

A dissertation submitted in partial fulfillment of requirements for the degree of

Doctor of Education

by

Clara H. Eder

Dissertation Committee

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December, 1998

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ABSTRACT

Infant mortality continues to be a significant national public health problem. The rate of African-American infant mortality in the United States remains as high as or higher than in some developing countries. In the state of California the continuing gap between African-American and Caucasian infant mortality rates is cause for alarm among public health providers.

Studies repeatedly indicate that the underlying causes of infant mortality are social, economic, environmental, cultural, political, racial and historical, though not in equal measure. Children born at a socioeconomic disadvantage have less chance of survival than have children of any particular race.

To address the disproportionate gap between black and white infant mortality rates, the California Department of Health Services funds Black Infant Health (BIH) projects in sixteen health jurisdictions. The projects implement six best practice intervention models. Plans have been made to assess the interventions' statewide impact by means of the Black Infant Health Evaluation Project.

To date, African-American infant mortality research has concentrated almost exclusively on between-race comparisons rather than on the intragroup variability within that community, leading to the erroneous conclusion that race alone explains infant mortality levels. Such an approach hinders the development of culturally appropriate programs designed to address the problems of high African-American infant mortality.

To complement the statewide evaluation design, this study researched intragroup variability and the impact of culturally appropriate interventions through a prospective study design of African-American women participating in four of the California BIH intervention models: Outreach and Tracking, Case Management, Health Behavior Modification, Social Support and Empowerment. Fourteen of the California BIH health jurisdictions were included in the research, which was conducted from July 1, 1996 to June 30, 1998. Sociodemographic and behavioral characteristics and reproductive and perinatal factors were studied to identify their association with low birthweight and their usefulness in developing low birthweight predictive models.

Results revealed that BIH participants experienced a lower percentage of low birthweight during the two-year study period than the statewide percentage reported for 1996-1997. Univariate analysis and multivariate modeling using logistic regression techniques consistently found that prematurity, history of poor pregnancy outcomes and cigarette, alcohol and drug use during pregnancy were predictors of low birthweight in the BIH population. This study sought to offer a clearer insight into the causes of African-American infant mortality by providing a better understanding of the differences in sociodemographic and behavioral characteristics and reproductive and perinatal factors that continue to place African-American women at greater risk for poor pregnancy outcomes.

DEDICATION

To my dear husband and son for their unconditional love and support and to all African-American infants who did not made it to their first birthday because of poverty, racism and other sociopolitical conditions. With hope for a better future for all our children.

ACKNOWLEDGEMENTS

This study was the result of collaborative efforts among several agencies: The California Department of Health Services, The Black Infant Health (BIH) Evaluation Program at San Diego State University and the California BIH Health Jurisdictions. Most importantly, the research was possible thanks to the hard work, love and inspiring dedication of those implementing the program in the field. Without the invaluable assistance of BIH staff members statewide, this study would not have been successful.

I would like to offer special thanks and acknowledgement to my mentor of many years, Dr. Winnie Willis. Her knowledge, advice, encouragement and support during this process were most critical to its completion. In addition, I would like to thank Dr. Suzanne Lindsay for her priceless assistance in the area of methodology, Julie Scalisi for her kind words in times of stress and my other co-workers who often reminded me that they knew I could do it.

I could not have persevered without the unconditional love and support of my husband, my son, my sister and my father-in-law, who unfortunately did not live to see me graduate but who I know is most proud of me. To my friend Noreen Sullivan, special thanks for her encouragement and her many hours critiquing the quality of my writing.

Finally, I would like to thank my study group: Cheryl Getz, Jaime Romo and Juanita Santos. Their support, encouragement and advice guided me through a process that was often frustrating.

My research confirms that there is a need to promote partnerships between academic institutions, governmental agencies and communities that will address complex issues such as African-American infant mortality in the state of California. I am most grateful for the opportunity to conduct this study, which has strengthened my dedication to promoting equality, racial tolerance and justice in our society.

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CHAPTER I

THE PROBLEM

Statement of the Problem

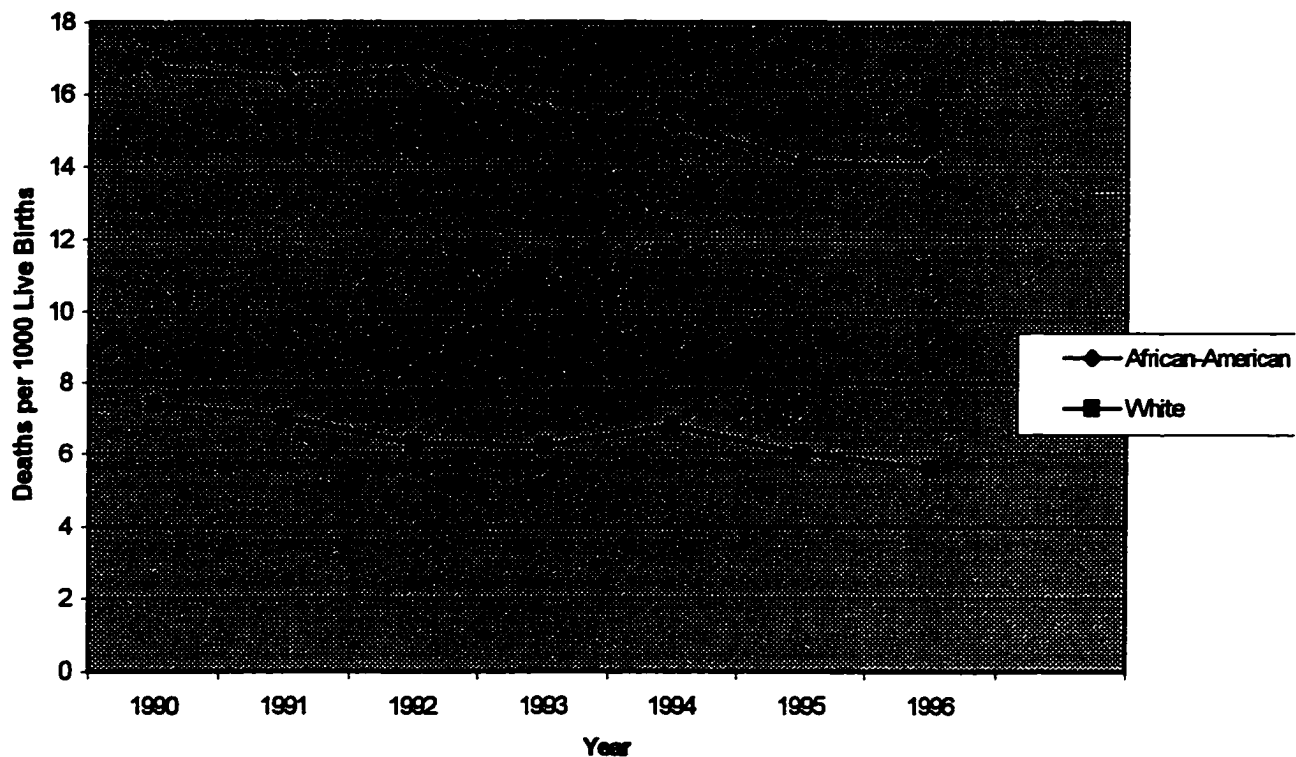
Infant mortality is a significant public health problem in the United States. In the state of California, the continuing gap between African-American and Caucasian infant mortality rates is cause for alarm among public health providers.

The United Nations Demographic Yearbook for 1996 notes that 21 countries with a population of at least 2.5 million reported lower infant mortality rates in 1995 than did the United States. Although the overall rate in this country has declined steadily during the past several years, data consistently show that African-American infants still die at more than twice the rate of infants of other races (Guyer, Martin, MacDorman, Anderson, & Strobino, 1997).

In 1995, the California African-American infant mortality rate was 14.4 per 1000 live births, compared to the Caucasian infant mortality rate of 5.8 (Guyer et al., 1997). Statewide, infant mortality has declined during the last several years, but the gap between black and white infant mortality remains. In 1996, 97% of African-American births and deaths occurred in 16 counties (California Department of Health Services, 1996).

Figure 1, showing the decline in infant mortality rates since 1990, illustrates the persistent gap between African-American and white infant mortality rates in the state of California.

Figure 1. California Infant Mortality Rates by Race and Year



Source: State of California Department of Health Services, Maternal and Child Health Branch, Epidemiology and Evaluation Unit Vital Statistics, Birth and Death Records 1990-1996 (6/98)

Numerous studies indicate that the underlying causes of infant mortality are social, economic, and racial. Children born at a socioeconomic disadvantage have less chance for survival than do children of any particular race. Astoundingly, in a country as developed as the United States, African-American infant mortality rates equal or surpass those in some developing nations.

Issues in Conceptualization of the Topic

Over the last decade, extensive national and international research has been conducted on infant mortality, focusing on sociodemographic, health and behavioral factors, reproductive history, gestational duration, infant gender, medical history, substance use, psychosocial variables and stressors, personal relations during pregnancy, exposure to violence, short interval between pregnancies, adequacy of prenatal care, access to care, combinations of providers and settings, and environmental factors. The results consistently identify social, economic, environmental, cultural, political, and historical factors that influence pregnancy outcomes, child survival and health status.

Thus far, most infant mortality research has identified discrepancies through between-race comparisons. Most troubling has been the perverseness of the conclusion that race explains infant mortality rather than that it identifies a risk factor. Few studies engaged in the examination of what it is about race that may impact infant mortality. No useful theoretical models existed until late 1990. Furthermore, only a minimum of attention has focused on the issue of intragroup

variability. This effectively ignores the inherent diversity within minority groups that must be considered when developing culturally appropriate programs for decreasing infant mortality. There has been very little investigation of the factors that influence good and poor pregnancy outcomes specifically within the African-American population.

Coll, Lamberty, Jenkins, McAdoo, Crnic, Wasik, & Garcia (1996) call attention to the lack of intragroup variability research in relation to integrative conceptual models of child development. Their conclusions can be applied with equal validity to the issue of black infant mortality rates. The authors emphasize the inherent danger in between-race research by noting that:

When ethnic and racial factors were taken into account, they were typically incorporated within an evolutionary framework that describes differences between racial/ethnic groups rather than within groups and conceptualized these differences as evidence for either the genetic or the cultural inferiority of ethnic/racial groups relative to the white mainstream standard. (p. 1893)

Furthermore, the authors observe that "the 'one model fits all' approach exposes the well-documented dangers of race-comparative research." They stress that it is essential to create "models that account for intragroup variability in diverse populations of color" (p. 1894).

In Black Families, Peters (1997) discusses African-American family research that has used descriptive, comparative deficit and ecological approaches. Descriptive approaches emphasize the pressures, demands, and

constraints of the environment on black families. Comparative deficit approaches are based on the theories of Robert Park and Gunnar Myrdal that deal with issues of the assimilation of blacks into American society. Park and Myrdal's rationality for comparative deficit approaches assumes that blacks are culturally deprived and views differences found between white mainstream Americans and black Americans as deficits. Behaviors, abilities, or attitudes observed in black mothers, it was assumed, "needed to be changed" (cited in Peters, 1997, p. 170). In response to the negativism of the comparison deficit approaches, ecological approaches were developed to emphasize the role of the environment and the analysis of behaviors according to families' culture or subculture value system. A social systems approach proposed by Billingsley (1988) emphasizes the need to begin studying the black experience with a new lens and to recognize the variability and complexity of black families in the United States.

In Developing Cross-Cultural Competence, Willis (1998) notes that the values, lifestyles, and cultural preferences of blacks in this country are quite diverse, flowing as they do from the background experiences of a mix of people originally from America, the Caribbean or Africa. Additionally, Billingsley (1988) supports the concept of diversity when he writes that black families may be upper, middle, or working class, and of urban, rural, southern or northern origin.

Willis documents that in 1993, 12.5% of the U. S. population were African-American; 27% of them were younger than 15 years old and 8% were 65

years or older. Thirty-six percent had completed high school, 22% had attended some college and two-tenths percent had completed four or more years of college. African-Americans were twice as likely as whites to be unemployed and their median income was 54% of that for whites. Thirty-three percent of African-American families were living below the poverty level and 57% lived in inner-city areas where crime, poor housing, unemployment and access to services are significant problems. Willis (1998) further states:

The environments in which poor, African-American families live and raise their children are ones in which day-to-day survival is paramount.

Protecting themselves and their children from violence, locating affordable housing, keeping their children well, getting the necessary medical care, providing food, and paying the rent are necessities that should not be taken for granted. Even in families in which resources are more available, daily confrontation with discrimination often results in feelings of anger, distrust, and cynicism, which may be played out as destructiveness toward self, family and/or community. (p. 179)

Among adult African-Americans, the leading causes of illness and death continue to be cancer, heart disease and hypertension. Children's major health problems include high rates of infant mortality, low birthweight, human immunodeficiency virus/acquired immunodeficiency syndrome, nutritional deficiency, sudden infant death and elevated blood lead level deaths (pp. 175-179).

As is true of every group, the level of knowledge and range of preferences regarding medical care and preventive health care varies widely among African-Americans, especially between middle-income families and families living in poverty. Many northern-born African-Americans use local private doctors and publicly funded health programs for basic health care needs, while those with strong ties to the south may prefer holistic approaches and home remedies. However, there is a significant number of African-Americans who do not have access to health care due to lack of knowledge or financial, motivational, lifestyle and behavioral barriers. As a result of experience with high violence, accidental causes of morbidity and mortality and frequent use of neonatal intensive care units, less educated or low income families sometimes assume that high-tech medical treatments are to be used only in trauma situations. Many do not seek out common preventive services such as prenatal care, well-baby care and immunizations; instead, the emergency room is used for many poor families' health care needs. African-Americans do not trust systems that traditionally have been non-relevant or non-responsive to them; this influences their utilization of and compliance with health care recommendations (pp. 191-193).

Another perspective on the importance of research assessing the effects of behavioral, cultural and psychosocial factors is well documented by Singh and Yu (1996) in their study of differences between U.S. and foreign-born women in major U.S. racial and ethnic groups. Using national and linked birth-infant death records for 1985-1987, the authors concluded that foreign-born immigrant status

is associated with a substantially lower risk for infant mortality and low birthweight, especially among blacks, Cubans, Mexicans and Chinese. Prenatal care, substance use, environmental tobacco smoke, household structure, breastfeeding and whether the pregnancy was wanted may account for some of the differences. However, in the case of blacks in this country, the authors maintain that:

To explain more fully the considerable differences between the U.S. and foreign-born Blacks, it may be necessary to look at not only the current circumstances and socially disadvantaged position of U.S.-born Blacks vis-à-vis foreign-born Blacks, but also their unique socio-cultural and political background in terms of historical perspective. Very few groups, if any, have experienced for so long the kind and degree of discrimination that U.S.-born Blacks have faced. (p. 842)

In this country, African-Americans have consistently been viewed as different from other groups. Living in a social context maintained and defined by historical and contemporary social conditions, the community is much more complex and socially stratified than is generally believed. Billingsley (1988) contends that a "great variation of conditions, attributes, and behaviors are obvious in such a large and a diverse people" (p. 6). It is necessary, therefore, when undertaking research, to study the entire range of variations within the community.

African-Americans' cultural practices, beliefs and values influence their

access to and utilization of health care services. Therefore the development and implementation of effective interventions aimed at decreasing infant mortality must reflect an understanding of and respect for the cultural differences within African-American communities. Thus far, most research has failed to recognize the importance of cultural competence and most methodologies compare ethnic groups to one another while failing to recognize diversity within each group.

Traditionally, public health comparisons of infant mortality have used white mortality rates as the norm. Thus, when white infant mortality rates improve, research is predicated on the assumption that white behavior in its totality is more desirable and white cultural norms are assumed to be superior to those of African-Americans. At this point, the illusion of white cultural superiority has crossed the line into the realm of public health research. Billingsley (1988) states that:

Society would help Negro families meet their functions much better if it placed more emphasis on the values of freedom – including freedom of choice in family form – and equality – including equality of opportunity to survive and prosper – with much less emphasis on the illusions of stability, excellence, wisdom, morality, normality, beauty, and power.

These illusions are the handmaidens of a subtle, persistent kind of racism which stifles the development of the Negro people and the Negro family, and thus also of a pluralistic and democratic society. (pp. 165-166)

Billingsley maintains that the behavioral guidelines we have created use

whites as the single norm. In using such a model for research, white supremacists have failed to recognize African-Americans' ethnic variations. Furthermore, Peters (1997) stated in Black Families that we must move beyond the comparative pathological approach of much of the research of the 1960s and early 1970s and begin to study black families from a perspective that recognizes the cultural variations, functionality, and validity of black families' life styles (p. 167).

Because most research to date has failed to recognize the importance of intragroup variability, future studies of African-American infant mortality must use a comprehensive theoretical framework that includes historical perspectives and ecological approaches and that takes into account the diversity of the country's African-American population. It is imperative that further research be done on both African-American infant mortality via intragroup variability and on the impact of culturally appropriate interventions. This type of research can identify and focus on the unique attributes of African-American pregnant women as a whole. At the same time, it can provide a better understanding of the differences in sociodemographic and behavioral group factors that continue to place African-American women at greater risk for poor pregnancy outcomes. At a time when health care resources for the poor are being withdrawn to an alarming degree, the stereotypical perception that every black woman represents a high-risk pregnancy jeopardizes attempts to decrease infant mortality rates and improve African-American pregnancy outcomes. Adequate resources must be targeted

to genuinely high-risk clients who are the main contributors to high infant mortality rates in California and the nation at large.

This study used a comprehensive approach to look at the intragroup variability of African-American pregnant women participating in the California Black Infant Health Program intervention models, hoping to better identify and emphasize the attributes of African-Americans that contribute to positive pregnancy outcomes.

The Black Infant Health intervention models that were developed in response to disproportionately high infant mortality rates in California have many elements recommended by Willis as culturally appropriate for African-Americans (p. 199). The BIH intervention models:

- take advantage of kinship bonds and focus on family strengths rather than weaknesses;
- use informal support networks (churches, neighbors, friends) to increase the effects of interventions;
- assess family attitudes and beliefs about health and medical care and try to match preferences to appropriate intervention regimes;
- survey community resources and use them as needed;
- adapt interventions to each client's educational level and life style;
- analyze the effects of poverty on families to determine which issues are related to cultural practices and which to socioeconomic status;

- **assume that poverty is not synonymous with dysfunction and that all African-Americans should not be stereotyped based on a subgroup's behavior or life style;**
- **recognize home language as an important element of self-identity;**
- **recruit ethnically diverse staff members for the programs.**

Background of the Black Infant Health Problem in California

In August of 1989, in response to data showing a consistent gap between the mortality rates of African-American and Caucasian infants, the California Department of Health Services (DHS), Maternal and Child Health (MCH) Branch, launched efforts to improve birth outcomes in African-American communities. These efforts targeted the 16 state health jurisdictions where 97% of live births and deaths occur annually.

A preliminary evaluation of existing Black Infant Health (BIH) demonstration projects, conducted by Dr. Barbara Wheeler from the University of Southern California (Wheeler, 1993), concluded that a uniform approach of "best-practices" across programs yielded maximum benefits for African-American infant mortality. Her results also identified the need to plan activities that ensure and facilitate:

- **documentation of the risk status of women so that intervention can be geared specifically toward special needs, and eligibility for BIH services can be identified at the outset;**

- **extensive community outreach through door-to-door canvassing by trained outreach workers;**
- **active community involvement in and ownership of the BIH initiative;**
- **coordination of services with other systems relevant to the targeted population (employment, housing, the courts, etc.);**
- **monitoring of targeted women and their children, at least until the first birthday of the youngest child;**
- **planned intervention that includes African-American men as well as women and children;**
- **development of women's self-advocacy and empowerment skills, independence and autonomy;**
- **formation of natural support systems; and**
- **use of intensive educational programs aimed at preventing unwanted pregnancies.**

In 1993, in response to Dr. Wheeler's recommendations, the California DHS, MCH Branch funded the development and testing of six best-practice models for interventions: Prevention, Outreach and Tracking, Case Management, Health Behavior Modification, Social Support and Empowerment, and the Role of Men. An advisory committee comprised of state and local projects' representatives and a team of evaluators were an integral part of the development process. In 1996, the California DHS revised the BIH projects' scopes of work to make the intervention models the standard of practice for BIH

projects across the 16 health jurisdictions.

Currently, BIH projects are located in County Departments of Public Health, in hospitals and in community health organizations. Direct client services are provided in a variety of settings such as welfare offices, schools, churches, recreation and community centers, community health clinics, and juvenile halls. Health jurisdictions implementing the Outreach and Tracking, Case Management, Health Behavior Modification, and Social Support and Empowerment models serve pregnant and parenting African-American women and their infants. Health jurisdictions implementing the Prevention model serve children 10-14 years old who are referred from schools, juvenile halls and community organizations. Health jurisdictions implementing the Role of Men model serve males who are either expecting a child or are parenting children up to one year of age.

The mission of the BIH projects was to provide culturally relevant services to African-American pregnant or parenting women in order to improve their health and welfare, as well as that of their infants and children. The goals of the BIH projects were to: (a) reduce the underlying causes of pregnancy complications and risks for pregnant and parenting African-American women; and (b) reduce the causes contributing to high rates of African-American infant mortality and morbidity (California DHS, 1993, p. 5).

In conjunction with the initiative to standardize BIH models of care, the California DHS, MCH Branch encouraged each project to include an evaluation

component of services provided. To assist in this process, a BIH Evaluation Project contract was awarded in 1993 to the Graduate School of Public Health at San Diego State University. Its goal was to assess the impact of BIH intervention models on African-American infant mortality and on the health of the mothers and their children by designing and implementing methods for collecting, analyzing, summarizing, and reporting data from BIH projects across the state.

Purpose of the Study

The aim of this study was to research intragroup variability and the impact of culturally appropriate interventions through a prospective study design of African-American pregnant women participating in four of the California BIH intervention models: Outreach and Tracking, Case Management, Health Behavior Modification, and Social Support and Empowerment. It was to complement the efforts of the BIH Evaluation Project at San Diego State University. The study will:

- **assess the association between sociodemographic and behavioral characteristics and low birthweight outcomes of BIH participants;**
- **assess the association between reproductive history and perinatal factors and low birthweight outcomes of BIH participants;**
- **assess the association between the length of BIH participation and low birthweight outcomes of BIH participants;**

- develop a predictive model for LBW using BIH participation variables, controlling for sociodemographic, behavioral characteristics and perinatal factors.

Operational Definition of Terms

BIH Participants: African-American pregnant women enrolled in the BIH Program in any of the sixteen BIH health jurisdictions.

BIH Health Jurisdictions: health jurisdictions in the state of California that have implemented a Black Infant Health Program. BIH health jurisdictions include: Alameda, Contra Costa, Fresno, Kern, Long Beach, Los Angeles, Pasadena, Riverside, Sacramento, San Bernardino, San Diego, San Francisco, San Joaquin, San Mateo, Santa Clara, and Solano counties.

Sociodemographic Characteristics: for purposes of this study, these are defined as age, marital status, employment status, education and primary income source.

Behavioral Characteristics: for purposes of this study, these include cigarette, alcohol and drug use during pregnancy.

Reproductive History: for purposes of this study, this includes the occurrence of anemia, pregnancy-induced hypertension, pyelonephritis and urinary tract infections in any previous pregnancy.

Previous Poor Pregnancy Outcomes: for purposes of this study, these include history of abruptio placenta, low birthweight, intrauterine fetal demise,

neonatal death, placenta previa, preterm labor and preterm delivery.

Gestational Age: age of the fetus since conception. The precise moment when conception occurred is rarely known. The duration of gestation is measured from the first day of the last normal menstrual period. Gestational age is expressed in completed days or completed weeks (e.g., events occurring 280-286 days after the onset of the last normal menstrual period are considered to have occurred at 40 weeks gestation).

Birthweight: infant's weight recorded at the time of birth and, in some countries entered on the birth certificate.

Normal Birthweight (NBW): infant birthweight of 2,500 - 4,000 grams.

Low Birthweight (LBW): infant birthweight of less than 2,500 grams.

Very Low Birthweight (VLBW): infant birthweight of less than 1,500 grams.

Premature Birth: delivery of a viable infant with birthweight of at least 500 grams or gestation of at least 20 weeks and less than 37 weeks.

Birth Rate: a summary rate based on the number of live births in a population over a given period, usually a year.

$$\frac{\text{Number of live births to residents in an area in a calendar year}}{\text{Average (midyear) population in the area in that year}} \times 1000$$

Fetal Death Rate: the number of fetal deaths in a year expressed as a proportion of the total number of births (live births plus fetal deaths) in the same year.

$$\frac{\text{Number of fetal deaths in a year}}{\text{Number of fetal deaths plus live births in the same year}} \times 1000$$

Neonatal Mortality Rate: in vital statistics, the number of deaths of infants under 28 days of age in a given period, usually a year, per 1,000 live births in that period.

$$\frac{\text{Number of deaths in a year of <28 days of age}}{\text{Number of live births in the same year}} \times 1000$$

Perinatal Mortality Rate: in most industrially developed nations, this is defined as:

$$\frac{\text{Number of fetal deaths (28 weeks or more of gestation) and postnatal deaths (first week)}}{\text{Number of live births and fetal deaths (28 weeks or more of gestation) during the same year}} \times 1000$$

Infant Mortality Rate (IMR): a measure of the yearly rate of deaths in children less than one year old. The denominator is the number of live births in the same year.

$$\frac{\text{Number of deaths in a year of children less than one year of age}}{\text{Number of live births in the same year}} \times 1000$$

Significance of the Study

The current BIH Evaluation Project was designed to make comparisons between racial groups, rather than address the diversity inherent within the African-American community. This study focused on intragroup variability and the impact of culturally appropriate interventions and it sought to offer a clearer insight into the causes of African-American infant mortality, highlight the unique attributes of African-American women as a whole, and provide a better understanding of the differences in sociodemographic and behavioral group factors that continue to place African-American women at greater risk for poor pregnancy outcomes.

This study was based on the assumptions that 1) African-American women are at higher risk for poor pregnancy outcomes due to social, economic and racial inequalities, 2) many pregnant African-American women have difficulty accessing health care services in a timely manner, 3) the assessment of risk for African-American pregnant women has addressed biological and medical aspects but has ignored the importance of psychosocial aspects, 4) cultural and ethnic differences have a bearing on utilization of health care services, 5) access to quality services is strongly influenced by economic and cultural factors, 6) the country's African-American community is much more complex and socially stratified than is generally believed and 7) effective interventions for the prevention of African-American infant mortality must be culturally appropriate and based on needs assessment and the assessment of

cultural beliefs, expectations and health behaviors of African-American families.

This study used some of the elements of a comprehensive ecological, social systems approach to study African-American infant mortality and the impact of the California BIH intervention models. By emphasizing intragroup variability, it attempted to identify unique attributes of African-American pregnant women as a whole and to expand the body of knowledge regarding the cultural appropriateness of existing health care interventions.

At its conclusion, the study provided a better understanding of the differences in sociodemographic and behavioral group factors that continue to place African-American women at greater risk for poor pregnancy outcomes. Targeting these factors can enhance existing intervention programs aimed at decreasing African-American infant mortality rates in California.

CHAPTER II

REVIEW OF THE LITERATURE

The purpose of this study was to research intragroup variability and the impact of culturally appropriate interventions using a prospective study design that would identify ethnic strengths and specific risk factors for African-American pregnant women. Identification of such strengths and risk factors may lead to the development and implementation of more culturally appropriate intervention practices aimed at decreasing African-American infant mortality.

To understand the problem of African-American infant mortality in California and the benefits of more culturally appropriate interventions, we must begin by recognizing the complexity of this public health issue. This literature review focused on infant mortality at the international, national and state levels; earlier research and theories on the historical roots of inequality; racial discrepancies affecting infant mortality; predictors of infant mortality; and successful approaches used in other parts of the country.

Historical Background

Traditionally, liberal politicians have been responsible for most of the legislation intended to remedy the unequal treatment of African-Americans in our society. Today, however, more than half a century since the repeal of the exclusionary Jim Crow laws and more than four decades after the beginning of the modern civil rights movement, there is no clear indication that systemic racial inequality is being eliminated.

In The Broken Covenant, Robert Bellah identifies African-Americans as “one group above all others for whom the proclaimed openness of American society has proven false. African-Americans have been exposed to the exalted ideal of success, but for no other group has it turned out to be such a mirage” (Bellah, 1992, p. 92). In discussing the barriers preventing African-Americans from realizing the dream of success, Bellah cites noted author James Baldwin’s recognition of social reasons as somewhat more important than economic and political ones.

African-Americans in the United States have historically suffered social and economic inequality because of racism and discrimination; they have been prevented from sharing fully in the prosperity that ensures an equal participation in the public sphere. Other groups that have pressed for full equality – women, workers, immigrants, the disabled – have faced similar barriers within the American political and social system, but liberalism’s promise of full equality has

nowhere been as challenged as in the ongoing civil rights struggle of African-Americans.

African-American inequality is rooted in the slave trade, though this was not considered a critical issue in the years leading up to the War of Independence and the writing of the U.S. Constitution. It is at the heart of an ongoing political, social, and philosophical struggle to accommodate both private property rights and the country's notion of equality.

Some progress has been made over the past forty years but liberal philosophy has not fundamentally challenged the root causes of the economic and political power relationships between European-American private property owners and the African-American community. Nor has it questioned the ways in which those relationships operate institutionally in areas such as child protection, access to health care services, the job market, education, electoral politics, juvenile justice, and the prison system.

Unequal treatment of African-Americans in this country began as a result of the unfettered exercise of property rights within a liberal political framework established on Locke's philosophical foundations. Today, despite greatly changed social conditions, African-American inequality continues on the same basis. Locke's concept of "individual democracy" is the cause of persistent inequality rather than the solution to it. Wiltse (1935) points out that the liberalism of the Jeffersonian tradition and individual democracy was doomed to failure. "The old philosophy served only to breed and to intensify the extremes

of wealth and poverty. It was from this inequality of distribution that social democracy was born" (p. 237).

Thirty years after his death, Martin Luther King, Jr.'s words continue to ring true. "The Negro still is not free – the life of the Negro is still crippled by the manacles of segregation and the chains of discrimination – the Negro lives on a lonely island of poverty in the midst of a vast ocean of material prosperity – the Negro still languishes in the corners of American society and finds himself in exile in his own land" (p. 217). Dr. King's call "to make real the promises of democracy; to rise from the dark and desolate valley of segregation to the sunlit path of racial justice; to lift our nation from the quicksand of racial injustice to the solid rock of brotherhood; to make justice a reality for all God's children" (p. 218) stands today as the call we all must answer in our pursuit of equality and a more just society. Reaching that goal is impossible so long as private property considerations are allowed to trample on the social good and so long as individual liberties take precedence over collective freedom. Equality is an American value yearning for fulfillment.

The post-World War II era brought economic success and social respect to many, but not to the majority of African-Americans in the United States (Bellah, 1992). Today's higher African-American infant mortality rate is one inevitable result of persistent social and economic inequality.

International Infant Mortality

Sachs, Fretts, Gardner, Hellerstein, Wampler, & Wise (1995) contend that "comparisons of infant mortality rates have long been interpreted as reflecting differences in society's capacity to provide for its citizens and its commitment to social equity" (p. 941). The infant mortality rate is used as a standard measurement of the health status of any society. Data from the United Nations Statistical Office show that, at the global level, 21 countries reported lower infant mortality rates in 1992 than did the United States. This difference was explained chiefly by the presence of some form of national health care program in nations other than the U.S. (Wegman, 1993).

While mortality rates have fallen in most countries, including the U.S., this country's relative standing has steadily deteriorated. In 1950 U.S. infant mortality ranked 7th among nations; by 1970 it had fallen to 16th; by 1988 it was down to 23rd (Williams, 1994). In 1991 (the most recent year for which comparative data are available), the U.S. infant mortality rate ranked 24th among countries or geographic areas with a population of >1 million (Centers for Disease Control [CDC], 1996).

Williams (1994) points out that descriptive studies of European perinatal systems emphasize that prenatal care is available to all women without payment. According to the author, expanded Medicaid coverage for prenatal care in the United States addresses this issue in part, but other support programs for European women have not been emulated in the United States on any large

scale nor in any systematic way. He states that European countries with better infant survival rates than the United States achieve favorable results by more effectively preventing unwanted births, by mandating affordable and accessible medical care for all citizens, and by providing additional financial and social supports to pregnant women and families with young children. Most European women register for benefits as soon as they begin prenatal care. These benefits include transportation, freedom from strenuous and night work, paid employment leave to obtain care and priority for housing benefits. In France, additional cash payments are provided to women who comply with the recommended prenatal care visit schedule. Most European countries legally mandate paid maternity leave for 10 to 40 weeks. Some countries provide women with 90 to 100 percent of their salary; others offer fixed payment of a smaller percentage. Some women receive cash payments – Birthing Bonuses – after delivery, in addition to monthly allowances that compensate for child rearing expenses. Cash payments take into account the family size, the illness of a child, whether the mother is a student or if she is breastfeeding. What is most important is the fact that these benefits are provided for all women, independent of financial need. Students and economically disadvantaged women receive additional benefits that may include longer maternity leave, higher financial benefits, loans, educational grants and priority for childcare. European women receive social and financial support in addition to universal health care, with no out-of-pocket payment at any time. The United States provides excellent medical care to

those with easy access, but lags well behind Europe in mandating social benefits, financial support and universal health care coverage.

In the interest of accuracy, however, Sepkowitz (1995) urges caution regarding the influence of birth registration methods currently used in international ranking to determine very low birthweight (VLBW) rates. Using data from the Demographic Yearbooks of the United States, the World Health Organization, and the U.S. Vital Statistics, the author compared the number of U.S. infants reported as weighing <1,500 grams with those from Japan, Sweden, the Netherlands, France, the UK and Canada. He concluded that countries reporting the lowest infant mortality rates tended to register the lowest number of infants weighting <1,000 grams. The U.S. registered approximately ten times more infants weighing <500 grams than the other countries. "A failure to report a live birth < 500 grams is equivalent to not reporting the death of a live birth, or it may be reported as a fetal death. Survivors in this weight group may be due to recording errors – survivors weighing just over 500 g. rarely survive as well" (pp. 586-587). According to the author, such differences in registration practices are responsible for this country's poor neonatal mortality rate ranking.

When Sachs, et al. (1995) studied data from 1986 linking National Birth-Infant Death Cohort, Ministries of Health and other published international data sources, they were led to recommend caution regarding interpretations of international statistics. The authors concluded that infant mortality provides a poor comparative measure of reproductive outcome because of regional

differences in clinical practices, differences in the definition of a live birth and differences in the reporting of live births. These could influence the statistics, particularly when extremely premature or VLBW infants (who are omitted from many countries' data) account for a significant portion of all infant deaths. The authors pointed out that although the current movement toward internationally standardized definitions will help make data more comparable, differences in clinical practices and local customs may continue to influence functional reporting practices. Nevertheless, despite any possible bias caused by nonstandardized reporting and a lack of universal definitions, the U.S. still does not fare well when international infant mortality rates are compared.

Although the infant mortality rate in the United States has declined steadily since 1933, it is consistently higher than that reported by many other industrialized countries. Singh and Yu (1995) studied trends and differentials in infant mortality, using the National Vital Statistics Systems for the years 1950 to 1991, the National Linked Birth and Infant Death data sets for 1985 to 1987, the 1988 National Maternal and Infant Health Survey, the National Natality Survey, and the National Infant Mortality Survey for 1964 to 1966. The authors reported that the United States ranked 23rd in the world in infant mortality in 1988, while in 1960 it ranked 12th. They demonstrated that although the infant mortality rate in this country shows a consistent downward trend between 1950 and 1991, the pace of the decline has not equaled that of other industrialized countries. Their study also concluded that the relatively unfavorable international standing of the

United States in terms of infant mortality stems in large part from the substantial racial (black/white) disparity in infant survival and associated socioeconomic inequalities that have existed in this country for centuries.

Consistent with other authors, Givens and Moore (1995), in their report on maternal and child health indicators, maintained that among developed nations, the United States ranks 24th in infant mortality, far behind Japan or Canada. On a more positive note, the authors observed that although 34,628 infants died before their first birthday in the United States in 1992, the infant mortality rate (8.5) was the lowest ever reported for the country. Even more encouraging is the fact that in less than a century, the U.S. infant mortality rate has dropped by 91%. However, Givens and Moore noted that "steady declines in infant mortality continue, but despite the tremendous strides made during the 20th century in improving infant health and the recent enactment of policy initiatives geared toward lowering infant mortality and morbidity . . . progress in reducing infant mortality has slowed" (p. 10).

United States Infant Mortality

According to the Centers for Disease Control (1996), the 1993 infant mortality rate for the United States (8.4 infant deaths per 1,000 live-born infants) was the lowest ever recorded and represented a decrease of 1.8% from the 1992 rate of 8.5. Based on provisional data for 1994, the declining trend in infant mortality continued through the end of that year (7.9).

Declines in race-specific rates varied by age at death. From 1992 through 1993, the overall neonatal mortality rate decreased 1.9% (5.4 to 5.3). For white infants the rate remained constant (4.3), and for black infants the rate decreased 0.9% (10.8 to 10.7). The overall postneonatal mortality rate decreased 3.2% (3.1 to 3.0 per 1,000); for white infants 3.8% (2.6 to 2.5); and for black infants 3.3% (6.0 to 5.8). In 1993, the risk of death during the first year of life for black infants remained 2.4 times greater than for white infants (CDC, 1996).

Singh and Yu (1995) applied log-linear multiple regression and Cox proportional hazards regression models to data from the National Vital Statistical System, the National Longitudinal Mortality Study, and the Area Resource File. They concluded that despite impressive reductions in childhood mortality, the United States still lags well behind many industrialized countries and that the decline has been unequal among age and sociodemographic subgroups and in cause-of-death categories. Their results indicated that the black/white disparity in infant mortality in this country not only has persisted but also has increased over time. Their conclusions included that there are substantial differences in U.S. infant mortality across other race and ethnic groups and that infant mortality differences also exist by education and family income. Citing the dramatic four-decades-long downward trend (1950-1991), they observed that it is primarily due to the elimination of such major mortality factors as pneumonia and influenza, respiratory distress syndrome, prematurity and low birthweight, congenital

anomalies, and accidents. Singh and Yu argue that the infant mortality rate in the United States remains higher than in most other western industrialized nations largely because of the higher mortality rate among certain minorities and groups of low socioeconomic status.

Although improvement is evident, the United States has not yet made sufficient progress toward meeting several of the maternal and child health objectives outlined in Healthy People 2000. These grew out of a national health strategy initiated in 1979 to reduce preventable death and disability, enhance quality of life and lessen disparities in the health status of different populations (U.S. Department of Health and Human Services [DHHS], 1990).

Improvement aside, facts reported by the Children's Defense Fund (1997a) are of great concern: in 1994, every 17 minutes a baby died during the first year of life; every 3 minutes a baby was born to a mother who received little or no prenatal care; every 2 minutes a baby was born at low birthweight; every minute a baby was born to a teenage mother; every 24 seconds a baby was born to an unmarried mother; and 9,795,000 children in the United States lacked health insurance (p. xi).

The CDF reports further that in 1994, among industrialized countries, the United States ranked 1st in military technology, 18th in infant mortality and 17th in low birthweight rates (p. xv).

California Infant Mortality

In 1993, the California infant mortality rate was 6.8 per 1000 live births. By 1995, California had lower infant mortality rates and low birthweight percentages than the United States as a whole. For that particular year, the United States infant mortality rate was 7.6 per 1000 live births and 6.3 for California, the lowest level ever recorded. The rate caps a steady decline in the last several years, from 8.5 in 1989 to 7.9 in 1990 to 7.5 in 1991. Although California's overall infant death rate dropped, the rate among African-Americans in 1993 was 16.2 and in 1995 remained high, at 14.4 more than double the 5.8 rate for whites.

The 1995 national rate of low birthweight (under 2,500 g) infants born to all races was 7.3, compared to 6.1 in California. Among ethnic groups, African-Americans had the highest percentage of low birthweight infants, at 12.0%. The 1995 infant mortality rates and LBW percentages by race for the United States and for California are presented in Table 1.

In 1995 California was the most populous state in the country, according to the California DHS, MCH Branch. As of July 1, 1994, the population in California was 32.1 million. In 1992 the proportion of women of childbearing age (15 to 44 years) was 23% of the total population.

Table 1

Infant Mortality Rates and Percent of LBW by Race for the United States and California, 1995

State	Infant Mortality			LBW*		
	All Races	White	Black	All Races	White	Black
United States	7.6	6.3	15.1	7.3	6.2	13.1
California	6.3	5.8	14.4	6.1	5.5	12.0

* Percent of birthweights of less than 2500 grams

Source: National Center for Health Statistics, National Vital Statistics System, 1995

Note: Rates per 1000 live births in specified group. Live births based on race of mother.

From 1979 to 1991, the total number of births in California nearly doubled, reaching a peak of 612,000 in 1990-91. Subsequently, the number of births declined for three straight years, to a crude birth rate of 18.2 births per 1,000 population. Seven percent of the nation's African-American population are Californians; only New York has more African-American residents. The state's increasing racial/ethnic diversity is evident among its youth. Population statistics indicate that of the 8.4 million children below 18 in 1992, 8% were African-American.

Following the national trend, California has made some welcome progress in lowering infant mortality rates but the situation continues to be of major concern among public health professionals. According to the Children's Defense Fund (1997b) in 1994 in California: every 2 hours a baby died during the first year of life; every 19 minutes a baby was born to a mother who received

late or no prenatal care; every 15 minutes a baby was born at low birthweight; every 8 minutes a baby was born to a teenage mother; every 3 minutes a baby was born to an unmarried mother; and 1,587,464 children lacked health insurance.

Predictors of Infant Mortality

In an effort to understand the underlying causes of infant mortality, extensive research has been conducted over the last decade, much of it focusing on predictors of low birthweight and poor pregnancy outcomes. Previous research has consistently identified low birthweight as a strong predictor of and the primary cause of infant mortality. The relationship between low birthweight and infant mortality has been well documented. "Low birthweight impacts the infant's survival and future development. LBW infants have a 40 times greater risk of dying in the neonatal period than normal weight babies; and VLBW infants are 200 times more likely to die than normal weight babies" (California Department of Health and Human Services, Maternal and Child Health, Year 2000 Health Objectives, 1995, p.30).

It is believed that much of the progress made in infant mortality reduction is the result of technological advances related to birthweight-specific mortality (DHHS, 1992). Studies have concluded that because birthweight is such an important determinant of infant mortality, the lower the birthweight the higher the infant mortality. Low birthweight is the most important risk factor correlated to

infant mortality (Berendes, Kessel, & Yaffe, 1988; Hutchins, Kessel, & Placek, 1984; Institute of Medicine, 1988; Kessel, Villar, & Nugent, 1984) and has consistently been used as the underlying factor in the study of infant mortality.

Sociodemographic, behavioral, and health factors, along with adequate care, have been shown to influence birthweight. Prysak, Lorenz, and Kisly's (1995) retrospective study of singleton births at three suburban Detroit hospitals from July 1, 1986 to June 30, 1990 concluded that nulliparas women 35 years and older have higher rates of antepartum, intrapartum, and newborn complications than nulliparas women of 25 to 29 years. They did not, however, have an increased perinatal mortality rate. This study was descriptive and included management by 100 obstetricians and a number of family practitioners. Data collected and analyzed included gestational age, birthweight, birth trauma, karyotypic abnormalities, perinatal deaths, congenital anomalies, Apgar scores, size for gestational age, hospital length of stay, neonatal intensive care unit admission, and meconium present at time of delivery. Demographic analysis showed that the study population was primarily white, married, and had private insurance. Logistic regression was used to determine significant predictor factors of perinatal mortality.

Some research examines factors associated with birthweight primarily through increases in gestational duration. Petridou, Trichopoulos, Revinthi, Tong, and Papathoma (1996) studied 2,538 mothers of singleton babies delivered in 1993 in two Athens hospitals. They modeled birthweight as the

outcome variable through multiple regression, including 32 potentially predictive factors. The authors classified six categories of factors related to birthweight in this data set:

- factors positively associated with birthweight primarily through increases in gestational duration (age at menarche, menstrual cycles longer than 32 days and parity 4 or higher);
- factors negatively associated with birthweight primarily through decreases in gestational duration (single motherhood, maternal age, and tobacco smoking);
- factors positively associated with birthweight primarily through increase of birthweight conditional on gestational duration (male gender, maternal menstrual cycles shorter than 27 days, maternal pre-gravida weight, anemia, and edema);
- factors negatively associated with birthweight primarily through decrease of birthweight conditional on gestational duration (employment during pregnancy, stillbirth, primiparity, pregnancy-induced hypertension, and coffee drinking);
- factors positively associated with birthweight through apparently dual effects (maternal education);
- factors negatively associated with birthweight through apparently dual effects (perceived stress and bleeding during pregnancy).

The authors stated quite accurately that birthweight is a poorly understood phenomenon that involves multiple interactions of biological, environmental, and social factors.

Geronimus and Korenman (1993) used data from the U.S. National Longitudinal Survey of Youth (1979-1988) to study the family backgrounds and health disadvantages of infants with teenage mothers. A total of 5,828 civilian women were interviewed in 1981, of whom 91% were still in the sample in 1988 and 60% had become mothers. The authors compared sisters who had first births at different ages and studied the relation between maternal age and low birthweight, prenatal care, smoking and alcohol used in pregnancy, breastfeeding, and well-child visits. The sister sample included 784 mothers with at least one sister in the sample who was also a mother. Low birthweight was found to be the most important predictor of infant mortality. Mean values were compared to the sister sample and to national mean values. Family background and health-related characteristics were categorized by race (all races, blacks and whites). In this study the authors found evidence that maternal family background accounts for many health-related disadvantages of firstborn infants of teenage mothers. They further suggest that "disadvantaged black primiparous women in their twenties may be an important and possible under-emphasized target population for interventions designed to reduce excess black low birthweight and infant mortality rates" (p. 213).

Other studies focus on the quality of health care. Nesbitt, Larson, Rosenblatt, and Hart (1997) studied 29,809 births to women living in rural areas by linking Washington State birth certificates with hospital discharge abstracts of mothers and neonates. Births to women from rural areas where more than two-thirds obtained care outside the area were compared with births to women from rural areas where fewer than one-third left for care. Descriptive data was reported by a community outflow group. Demographic differences and rates of adverse neonatal outcomes across high- and low-outflow groups were assessed using Chi-square and t tests. The researchers concluded that poor access to local providers of obstetric care was associated with a significantly greater risk of having a non-normal neonate, for both Medicaid and privately insured patients.

Sociopolitical factors have been at the core of some research. Zapata, Rebolledo, Atalah, Newman, and King (1992) studied health effects of social and political violence on pregnancy complications in a Chilean neighborhood mapped for occurrence of socio-political violence during 1985-1986. From 58 health centers, 3 were randomly selected from high-violence areas and 3 from low-violence areas. The study sample included 179 pregnant women ages 19 to 40 who were enrolled in prenatal care at any of six selected health centers, lived within the center's geographical area, and had no chronic medical conditions. One hundred and thirty-three women who lived in areas of high sociopolitical violence and 66 who lived in areas of lower sociopolitical violence were

interviewed. The researchers demonstrated that women living in high-violence neighborhoods were significantly more likely to experience pregnancy complications than women living in low-violence neighborhoods (OR = 5.0; 95% CI = 1.9-12.6; p < 0.01). Multiple logistic regression was used to assess the independent effects of age, low social support, high level of alienation, perception of neighborhood milieu, and sociopolitical violence in the neighborhood. After controlling for several sets of potential confounders, residence in a high-violence neighborhood was found to be the strongest risk for pregnancy complications.

Interest in models of care and their impact on outcomes motivated authors Fischler and Harvey (1995) to study three groups of low-income women representing different models for the delivery of prenatal care. One group received prenatal care from certified nurse-midwives (CNMs) in a hospital-sponsored prenatal clinic (n = 309), a second group received prenatal care from a group of CNMs in private practice (n = 111), and a third group received prenatal care from a private-practice MD group (n = 297). Sociodemographic, prenatal care, and health indicators data were collected from infant birth certificates. The authors used analysis of variance and Chi-square tests to examine the three groups relative to sociodemographic characteristics, prenatal care, health indicators, and birth outcomes. Controlling for sociodemographic characteristics, health indicators, and adequacy of prenatal care, multiple regression was used to determine the independent association of prenatal care

provider and setting to birthweight. The researchers concluded that although the importance of prenatal care is widely recognized, little is known about the impact of different models of care on health outcomes. They reported that medical factors related to pregnancy, smoking, primiparity, and inadequate prenatal care were all significantly associated with lower mean birthweight. In addition, different combinations of providers and settings may influence both the delivery of prenatal care and pregnancy outcomes. After controlling for factors known to affect birthweight through multiple regression analysis, the researchers showed that receiving care from CNMs and receiving care in a private setting were associated with better birthweight outcomes. The findings of this study suggest that care provided by CNMs in private settings may differ from that provided by CNMs in hospital-sponsored clinics or by private physicians. The authors suggest that the differences may be due to the fact that private-practice CNM care may be delivered using a more comprehensive midwifery model.

Racial Discrepancies in Infant Mortality

The California DHS, MCH Branch (1996) reports that the infant mortality rate in the U.S. has declined steadily during the past several years. However, data consistently show that African-American women still have twice the percentage of low birthweight births and that African-American infants still die at more than twice the rate of infants of other races.

Much research has been conducted on infant mortality, low birthweight, racial issues and identification of differences between blacks and whites in this country. Rawlings, Rawlings, and Read (1995) studied a racially mixed population of 1,922 white and black women in the military who had two consecutive singleton pregnancies during the study period and who had access to free, high-quality health care. Using Chi-square test, Student's t test, and stepwise logistic regression analysis, the authors attempted to identify patterns of differences between the races in the prevalence of pregnancy outcomes likely to result in an increased risk of infant mortality. Their comparisons focused on the differences in the prevalence of preterm delivery of a low birthweight infant. Results of the study showed that 7.7% of the 298 black women and 3.2% of the 1,628 white women delivered premature, LBW infants ($p < 0.001$). In addition, for black women, an interpregnancy interval of less than 9 months was associated with a significantly greater prevalence of preterm delivery and low birthweight outcomes. The authors concluded that a short interval between pregnancies is a risk factor for low birthweight and preterm delivery, and that black women experience such intervals more commonly than do white women.

Underscoring the concerns of many public health researchers, Givens and Moore (1995) found the wide gap between the infant mortality rates of African-American and white infants particularly troublesome. In 1992, the national infant mortality rate for African-American infants was 16.8, while the rate for white infants was 7.3; African-American infants were more than twice as likely

to die within the first year of life. The authors observed that the infant mortality rate for African-American infants is about what the rate for white infants was 21 years ago, and that the disparity between African-American and white infant mortality rates is largely due to a higher rate of LBW births among African-Americans.

According to Givens and Moore, perinatal health discrepancies among racial and cultural groups are more likely related to the stresses of continued racism, sociocultural factors discouraging the use of preventive health care and the effects of years of inequity among Americans with respect to income levels, family stability, education, nutrition, employment, and health care. They further state that a review of the literature illustrates how widely known it is that women who receive early, regular prenatal care are far more likely to give birth to healthy, full-term, normal-weight infants than are those who receive care later in their pregnancies or not at all. It is important to highlight the authors' conclusions that despite the known benefits of prenatal care, only 78% of women giving birth in 1992 received prenatal care beginning in the first trimester. In addition, African-American and Hispanic women generally receive care later than white women do: only 64% of African-American and Hispanic women receive first-trimester care versus 85% of non-Hispanic white women. Givens and Moore also contend that between 1990 and 1992 there was only a very limited increase in the proportion of African-American women receiving first-

trimester care (from 60% to 64%), doing little to narrow the gap between those who receive early prenatal care and those who do not.

It is commonly agreed that many socioeconomic risk factors are strongly predictive of premature birth, one of the main contributors to infant mortality. According to Lieberman, Ryan, Monson, and Schoenbaum (1987), racial differences in the rate of premature birth are due to specific medical and socioeconomic characteristics. In their study of a hospital-based cohort of 8,903 women (1,365 blacks and 7,538 whites), the authors attempted to identify medical and socioeconomic risk factors that could explain the known difference in premature birth rates between white and black women. Information was obtained from interviews at the Boston Hospital for Women from August 1977 to March 1980. The study sample included women who either had private insurance or received welfare support. Welfare status was used as a dichotomous measure of economic status. The study examined risk factors for prematurity in two categories: medical conditions associated with premature birth and risk factors related to economic, demographic, or behavioral variables. Crude odd ratios for prematurity were calculated and logistic regression analysis was used to determine the extent of the association between various risk factors and the increased risk for prematurity in the black women. The study concluded that it is not simply the presence of a specific risk factor but rather a number of economic, demographic, and behavioral factors that predict premature birth.

Noting that numbers of first-day deaths rose at a steady pace during the 1950s and 1960s, even though overall U.S. infant mortality declined rapidly during the same period, Hansen and Kiely (1992) suggest that racial disparities in the U.S. significantly affect first-day deaths more than any other infant deaths. Infant deaths are highly concentrated in the early neonatal period. In the United States one out of three infant deaths occurs during the first 24 hours. The authors used national data available from the United States, West Germany and Czechoslovakia to illustrate the importance of isolating day-one mortality; they found that the risk of first-day death in the United States is almost 20% greater than in the other two countries studied. The interpretation of these results, the authors point out, requires caution because of the uncertainties about exact time of death. First-day mortality can be underestimated if the death certificates do not require both date and time of death. The United States requires this information in birth and infant death certificates.

At the national level, regional differences (Northeast, Midwest, South and West) in neonatal mortality were more apparent in first-day death statistics and the increased risk for blacks was greater for first-day deaths than for later deaths. In 1985, for whites, day 2-28 death rates varied little, from 2.5 to 2.9 per 1000 live births, while day-one death rates ranged from 2.9 to 3.8. For blacks this contrast was more pronounced: day 2-28 death rates were between 4.2 to 4.7 and day-one rates were between 5.7 to 8.4 per 1000 live births. The most

significant difference between black and white first-day deaths was found in the Midwest.

Alo, Howe, and Nelson (1993) conducted a population-based birth cohort study, using the matched birth and death master files for Illinois residents from 1980 through 1989. The authors used a computerized linkage algorithm to match infant death certificates to corresponding birth certificates in order to study birthweight-specific infant mortality risk and leading causes of death. Like other researchers, the authors concluded that black infants have more than twice the mortality risk of white infants. This risk is attributable to higher mortality in the neonatal period for black normal birthweight infants (NBW) and in the postneonatal period for all black infants, regardless of birthweight. Black NBW infants had higher mortality risks for the three major leading causes of infant death: sudden infant death syndrome (SIDS), congenital anomalies, and prematurity and related conditions.

On the other hand, Guyer, Strobino, Ventura, MacDorman, and Martin (1996) stated in their Annual Summary of Vital Statistics for 1995 that “Although all racial groups have experienced declines in IMR, the relative difference in rates between black and white newborns has increased . . . higher neonatal mortality among black births reflects their higher percentage of LBW and VLBW births” (p. 10). They reported that in both 1981 and 1991 black infants had higher mortality rates than white infants for each of the 10 leading causes of death. Of greater concern, the black/white infant mortality ratios – specifically

from prematurity and low birthweight, pneumonia and influenza, and perinatal infections – actually increased between 1981 and 1991. This exacerbated the already substantial racial disparity in mortality from these causes. The authors concluded that the risk of mortality was 2.2 times higher for black infants than for white infants, a statistic that is projected to prevail during the first decade of the 21st century.

Schieve and Handler (1996), in their study exploring the associations between race, preterm delivery, etiologic classification of preterm delivery and perinatal mortality, reported that in 1993 black infants were 2.4 times as likely to die during the first year of life as were white infants. This study included a population of 13,010 black and 19,007 white mother/infant pairs delivered at Chicago hospitals during 1988-1989. Deliveries were classified as term (equal to or greater than 37 weeks gestation), preterm (less than 37 weeks) and very preterm deliveries (less than 32 weeks). Perinatal mortality differences between black and white groups were calculated and adjusted for birthweight and other potentially confounding variables. This study's findings of a twofold increase in both preterm delivery and perinatal death among blacks relative to whites is consistent with the findings of other studies. The authors explained this disparity in part by higher rates of LBW among black women, particularly LBW associated with preterm birth. In agreement with Schieve and Handler, other studies indicate that black infants are twice as likely as white infants to be born preterm or very preterm and to die during the perinatal period. Schieve and Handler

strongly underscore the necessity of studying the potential differential impact of various etiologic pathways on the black/white disparity in infant mortality.

According to data on 38,551 black and white adolescents from ages 10 through 14 obtained by Leland, Petersen, Braddock, and Alexander (1995) from the 1983-1986 U.S. linked live birth-infant death files, black mothers had higher proportions of very low and low birthweight infants than did whites (VLBW: 3.7 versus 2.6; LBW: 15.0 versus 10.5). Logistic regression analysis indicated that black mothers were at higher risk for having low birthweight, very low birthweight, small for gestational age, preterm, and very preterm infants. Young black adolescents appear to be particularly vulnerable in this regard. In addition, the study's authors reported that blacks are more likely to wait until their second trimester to begin prenatal care, in contrast to the higher proportion of whites that begin care in the first trimester. The authors discovered, to their surprise, that even black women whose lives are not circumscribed by poverty cannot always overcome the effects of racial discrepancies in infant mortality.

Foster, Thomas, Semanya, and Thomas (1993) studied intergenerational effects on birth outcome. Using a longitudinal study design, the authors examined health data from blacks and whites of relatively high socioeconomic status for second and third generation outcomes. Birth certificates, hospital records and questionnaires were used to obtain reproductive data. Birthweight was used as the primary dependent variable, and independent variables included education, income, social status and non-obstetric health problems.

The study concluded that black women of the same socioeconomic status as white women had a twofold risk of giving birth to an infant weighing <2,000 grams and a threefold risk of delivering a VLBW infant weighing <1,500 grams.

Racial differences in distribution and birthweight-specific mortality were the focus of a 1992 Iyasu, Becerra, Rowley, and Hogue study. Using 1983 National Linked Birth-Death File and restricting analysis to resident non-Hispanic black ($N=539,107$) and white ($N= 2,544,525$) single live births, the authors attempted to assess the relative contribution of VLBW infants to the black/white gap in IMR. Their study showed VLBW occurred in 2.3% of all black live births and in 0.8% of all white live births. In this study deaths among VLBW infants accounted for 62.5% of the black/white gap in IMR. The study concluded that to significantly reduce the infant mortality gap in the United States, it would be necessary to identify strategies that reduce preterm births, particularly among blacks.

To investigate the infant mortality gap while controlling for sociodemographic variables, Schoendorf, Hogue, Kleinman, and Rowley (1992) studied mortality in infants born to college-educated parents. The authors used data from the National Linked Birth and Infant Death Files compiled by the National Center for Health Statistics. The study population included 865,128 white infants and 42,230 black infants born to college-educated parents from the 1983 to 1985 birth cohort. The infant mortality rate for blacks was 10.2 per 1,000 live births compared with 5.4 per 1,000 live births for white infants. For

black infant deaths, the adjusted odds ratio was 1.82 (95 % confidence interval, 1.64 to 2.01). The low birthweight rate for blacks was 7%, and while it was significantly lower for whites (3%), no differences were observed in the mortality rate. Black infants were three times more likely than white infants to die for perinatal reasons, including prematurity, but they were not more likely to die of sudden infant death syndrome. Mortality rates for blacks and whites were equal after excluding low birthweight infants. The researchers concluded that, in contrast to black infants in the general population, those born to college-educated parents have higher mortality rates than similar white infants only because of their higher rates of low birthweight.

Prevention of African-American Infant Mortality

As previously discussed, low birthweight has been identified as a major determinant of infant mortality. The issue of its prevention, therefore, has received much attention; designing and implementing interventions targeted at improving pregnancy outcomes by decreasing low birthweight rates has become a national priority and several programs have made significant contributions in recent years. It is worth mentioning several of these programs.

The Preterm Birth Prevention Program at the University of Pittsburgh identified women at risk for preterm labor and birth. These high-risk women then received repeated individual instruction regarding signs and symptoms of preterm labor, from nurses with extensive obstetrical experience.

The West Los Angeles Prevention Project (1988) screened clients and those with selected risk factors were randomized into one of five interventions, which tested different treatment protocols for high-risk women. Psychosocial assessment was also conducted on all participants. All high-risk participants received education about signs and symptoms of preterm labor, extensive nutrition counseling and support services.

The Haguenu Prenatal Study (1971-1988) was conducted at the Maternity Hospital of Alsace, France. A community-based intervention for prenatal care was evaluated. The intervention included at-risk analysis for individual factors predicting preterm delivery and the delivery of measures targeted at decreasing uterine contractions and preterm deliveries.

The South Carolina Multicentered Randomized Controlled Trial to Reduce Low Birthweight, and the Prematurity Prevention Project in Northwest North Carolina (1985-1986) incorporated an initial hour-long teaching session, which identified women at specific risk because of substance use, nutrition behaviors, stress, and level of activity and lack of social support. Education for high-risk women included signs and symptoms of preterm labor; intensive follow-up was done one to two times per week with cervical exams and reviews of all initial teaching.

Programs such as the North Carolina Improved Pregnancy Outcome Project, IPO (Peoples, Grimson, & Daughtry, 1984) and The Better Babies Project (Coates, 1993; Coates & Maxwell, 1990) have been launched in states

having the highest rates of infant mortality. The IPO project was funded in 1977 to serve two rural areas characterized by poverty and high rates of perinatal and infant mortality. CNMs were incorporated into the delivery system to provide prenatal, intrapartum and postpartum care; obstetricians provided medical backup. In addition to the midwifery care, services were expanded to include nutrition counseling, social services, and health education. An evaluation using retrospective analysis of vital statistics maintained by the North Carolina State Center for Health Statistics was conducted to assess the effects of the project on use of prenatal care and incidence of low birthweight among its black participants. This evaluation included three sequential comparisons. First, a cohort of all black women in the IPO counties who delivered between July 1, 1979 and June 30, 1981 was compared to all black women residents in neighboring counties who delivered during the same period. Second, a subset of the IPO counties' cohort was compared to all black women in the comparison counties. Third, black IPO teenagers were compared to black teenagers within the comparison counties. Five indicators associated with prenatal care or pregnancy outcomes in previous studies were dichotomized as control factors: maternal education, age of the mother, reproductive risk, adequacy of prenatal care, and birthweight. Weighted least squares and stratified analysis procedures were used in the analysis. The evaluation concluded that the project was associated with increased use of prenatal care for blacks, but no corresponding effect was detected on the incidence of low birthweight. In

relation to adequacy of care, the evaluation showed that black participants' risk of receiving less than optimal prenatal care was 55.1% greater than the comparison group's risk. Teenagers were 37.2% more likely to receive less adequate prenatal care than the comparison group.

The Better Babies Project was a community-based prenatal program designed to reduce low birthweight rates in the District of Columbia. The project served primarily African-American women who were less than 29 weeks pregnant. The project did not offer traditional prenatal care. Instead, eight lay health workers, supervised by a community health nurse and a social worker, provided interventions including education on smoking cessation, pregnancy weight gain, alcohol and drug problems, early detection of preterm labor, and referrals. Services were available during emergencies, and after-hours assistance was available from the Visiting Nurse Association of the District of Columbia. Primary evaluation analysis of this project compared the birthweight of infants born to women who lived in the study census tracts during the time of the evaluation with the birthweight of infants born in comparison census tracts. Two separate linear regression models calculated the risk of low and very low birthweight of participants and nonparticipants. Maternal age, maternal education, marital status, parity, gravity, prior fetal loss, and an age parity interaction term were used as risk factors. The primary finding of this evaluation was that there were no differences in low and very low birthweight rates in the

study population and the comparison group. This, according to the researchers, was the result of low participation rates in the study census tracts.

Other programs, such as California's Comprehensive Perinatal Services Program for Medicaid clients (Korenbrod, Gill, Clayson, & Patterson, 1995), The Community-Based Enriched Model Prenatal Intervention Project in the District of Columbia (Herman et al., 1996), and the Women, Infants, and Children (WIC) Food Supplement Program (Brown, Watkins, & Hiatt, 1995) have also made significant contributions towards more effective approaches for improving maternal care and pregnancy outcomes. These programs have emphasized the need to recognize the complexity of factors influencing infant mortality. In addition to medical care they have developed and incorporated comprehensive services such as outreach, linkage, referrals and tracking, health education, nutrition, and social services, in an effort to reduce the rate of low birthweight among at-risk pregnant women.

The evaluation of programs such as those mentioned above has limitations common to all: population mobility, low client participation, high drop-out rates, lack of appropriate comparison groups because of the difficulties in using randomized study design, and complexity of the analysis of gestational age and birthweight, among others.

Public health researchers and practitioners, along with political and community leaders have long argued that social, economic, environmental, cultural, political, and historical influences that affect health must be addressed if

health outcomes are to be improved. Suggesting a course of action contrary to the common public health strategy of promoting individual-level health services, Bird (1995) proposes that public health may most effectively reduce state-level infant mortality by targeting state-level structural correlates of infant mortality. His recommendations followed a comparison of the relative strength of the association between state-level infant, neonatal and postneonatal mortality and two sets of variables: structural (i.e., proportion of blacks, age groups, education, income, residential segregation measures, ratio of male to female, occupation) and health services (i.e., number of physicians, live births having received delayed, late or no prenatal care, number of abortions, state expenditures on health, hospitals and public welfare).

The preceding literature review makes it clear that efforts such as those launched by the California DHS to address adverse health outcomes for African-American mothers must be evaluated carefully if we are to promote more effective ways of improving the overall health and well-being of African-American infants, women, families, and communities.

Evaluation of the impact of the California BIH Program can be conducted effectively by studying such underlying causes of infant mortality as low birthweight, which has consistently been identified as a strong predictor of and the primary cause of infant mortality. The impact of the implementation of BIH best-practice intervention models can be evaluated by analyzing birthweight outcomes of BIH participants. Results of this evaluation may provide a

significant contribution toward reducing the disproportionately high rate of African-American infant mortality in the state of California.

CHAPTER III

METHODOLOGY

This chapter contains a discussion of the research methodology. The study design and rationality, population description and sampling procedure, Black Infant Health intervention models, data collection and instrumentation, data validity, data reliability and methods used in data analyses are addressed. Lastly, potential biases and limitations are discussed.

Study Design

A prospective design was used in this research to study intragroup variability of the California Black Infant Health Program's participants. The period of observation began on July 1, 1996 and the study population was traced through June 30, 1998. The study design allowed the identification of a subset of a defined population that had been exposed to interventions (BIH intervention models) which are thought to influence the probability of occurrence of a given outcome (birthweight). The cohort for this study shared common experiences within a defined period of time – pregnancy, participation in BIH and delivery of a singleton live birth.

The study design was advantageous in several ways. It allowed the cohort to be classified in relation to participation in BIH prior to the pregnancy outcome. It permitted calculation of the incidence rates of low birthweight and normal birthweight and it facilitated observation of other outcomes such as length of gestation.

Data was collected on all African-American pregnant women who entered the Black Infant Health Program on July 1, 1996 or later in any of the sixteen BIH health jurisdictions and who had a singleton live birth prior to July 1, 1998. Outcomes examined included birthweight as a dichotomous variable (low birthweight or normal birthweight). Participation in the BIH intervention models was analyzed by length of stay in the BIH Program. Using standardized forms, data was obtained from sixteen BIH health jurisdictions and then entered into the BIH Management Information System (BIH-MIS). Data from the BIH-MIS was downloaded first to the Department of Health Services, Maternal and Child Health Branch in Sacramento and from there to San Diego State University to be used in the study.

Research Questions

Four research questions were formulated to operationalize the study purposes and to structure the analysis.

Research Question #1: What is the association between sociodemographic and behavioral characteristics and low birthweight outcomes of the BIH participants?

Research Question #2: What is the association between reproductive history and perinatal factors and low birthweight outcomes of BIH participants?

Research Question #3: What is the association between the length of participation in BIH and low birthweight outcomes of BIH participants?

Research Question #4: Can a predictive model for LBW be developed using BIH length of participation, controlling for sociodemographic, behavioral characteristics and perinatal factors?

Population Description and Sampling Procedure

BIH Program Participation

The population for this study consisted of all pregnant women enrolled in the California Black Infant Health Program who delivered a singleton live birth between July 1, 1996 and June 30, 1998. The women were recruited into the program by trained Community Health Outreach Workers (CHOWs). Outreach strategies included self-referral, canvassing (shelters, grocery stores, laundromats, beauty shops, streets) and agency referrals (health agencies, community organizations, churches, social services). Following the initial outreach, the BIH screening instrument was used to determine client eligibility for BIH participation. The level of risk for entry into the program was determined by each of the sixteen BIH health jurisdictions, based on local needs and population levels of risk.

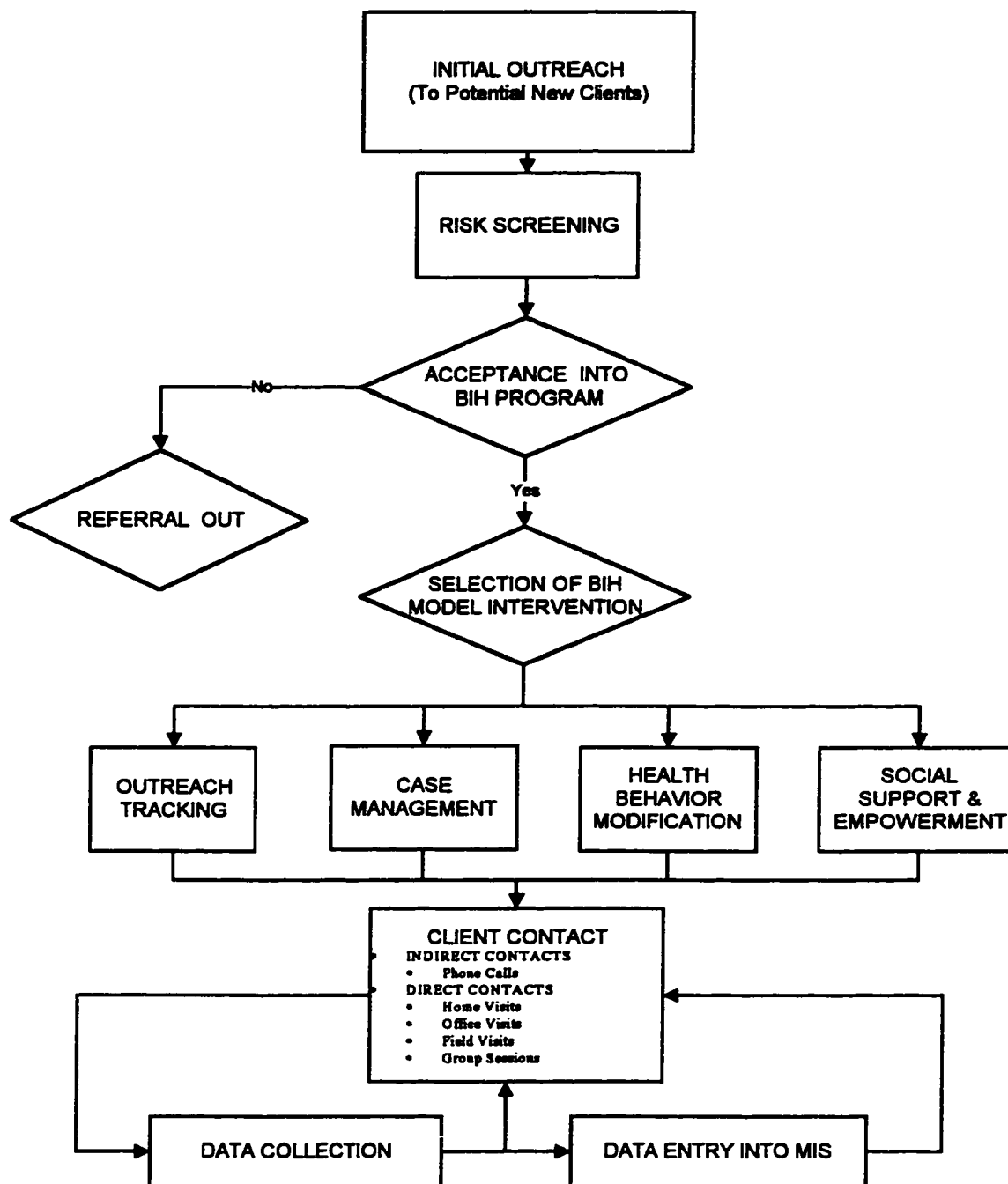
Each health jurisdiction offered the Outreach and Tracking model and one additional intervention model. The selection of second models by the health jurisdictions was based on the results of needs assessments and community resources inventory development conducted at each site during 1994-1995. All clients enrolled in the BIH Program participated in the Outreach and Tracking model. Participation in a second model was based on a client's assessment of need. Figure 2 shows the process for determining eligibility for enrollment in the BIH intervention models.

Study Population Inclusion and Exclusion Criteria

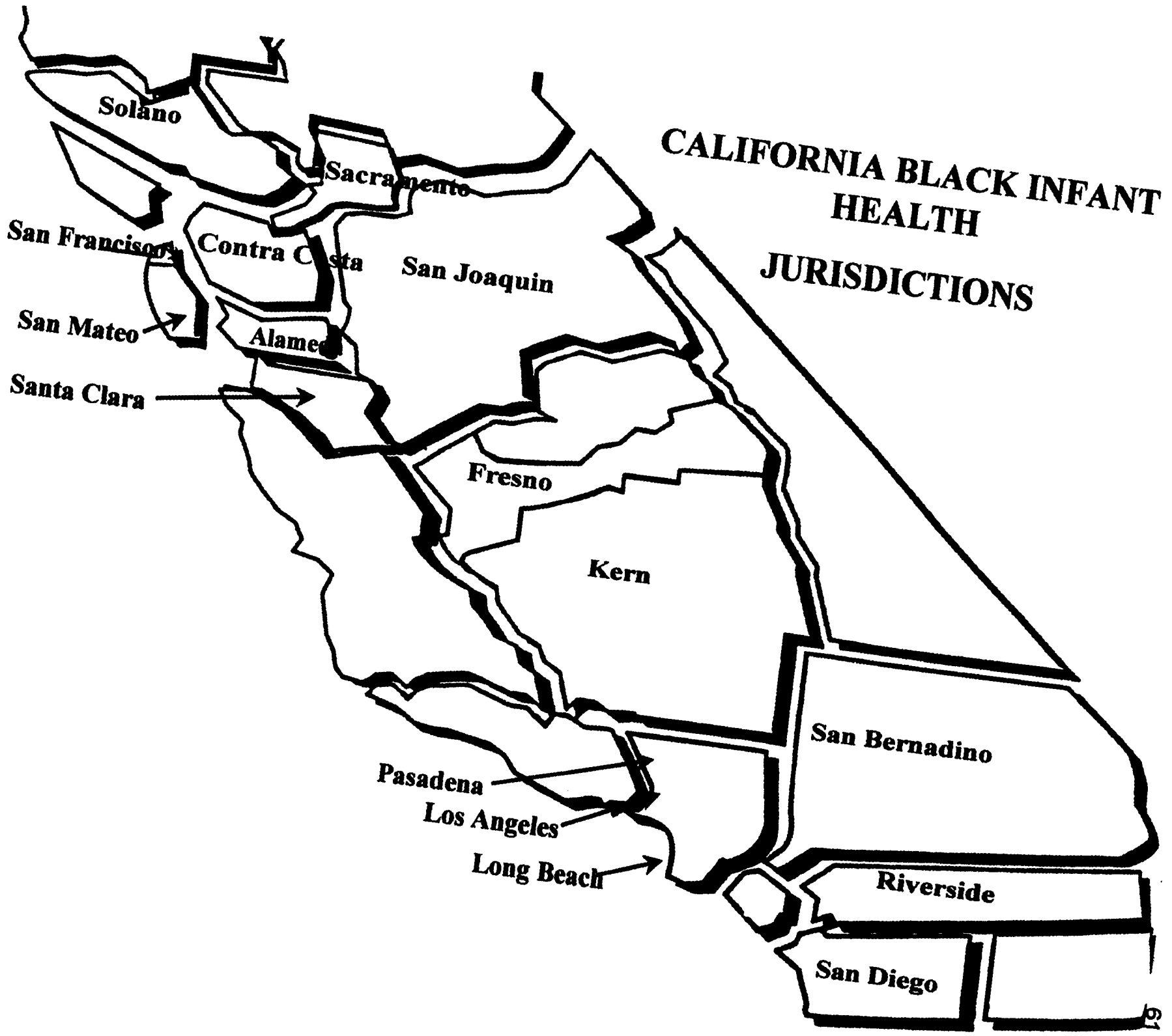
The study population was limited to African-American women who fit the inclusion criteria. Data on a total of 1627 BIH participants was extracted from the BIH-MIS: 180 cases of low birthweight and 1447 cases of normal birthweight. The total number of participants in the BIH Program statewide on June 30, 1998 was 3275. Cases in this study represented 50% of the BIH population in California. Inclusion and exclusion criteria are described below.

1. Pregnant women, self-identified as African-American.
2. Participation in the BIH Program in any of the sixteen BIH health jurisdictions in the state of California (Alameda, Contra Costa, Fresno, Kern, Long Beach, Los Angeles, Pasadena, Riverside, Sacramento, San Bernardino, San Diego, San Francisco, San Joaquin, San Mateo, Santa Clara, and Solano) during the study period (Figure 3).

Figure 2. Black Infant Health Client Participation Flow Chart



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3. Enrollment in at least one of four BIH intervention models (Outreach and Tracking, Case Management, Health Behavior Modification, or Social Support and Empowerment) on July 1, 1996 or later.
4. Delivery of a single live birth prior to July 1, 1998.

California Black Infant Health Intervention Models

Four of the six BIH intervention models provided the data for this study: Outreach and Tracking, Case Management, Social Support and Empowerment, and Health Behavior Modification. Outreach and Tracking was implemented in all health jurisdictions, Case Management was implemented in five of sixteen health jurisdictions. Social Support and Empowerment was implemented in eight of sixteen health jurisdictions and Health Behavior Modification was implemented in one of sixteen health jurisdictions.

Outreach and Tracking Intervention Model

There is widespread agreement that prenatal care is an effective intervention strongly associated with improved pregnancy outcomes. The California Department of Health Services is strongly committed to making prenatal care available to all eligible Medi-Cal and low-income women in California. Prenatal care is especially important for women who are at increased medical and/or social risk. Outreach is traditionally defined in terms of case finding and/or social support. It is used as an intervention to increase participation in prenatal/postnatal services, and it employs strategies to first

identify and then link women with appropriate services that affect quality of life. It offers follow-up support and assistance to help them remain in care once enrolled and extends to ongoing involvement in problem-solving activities on behalf of the clients.

In the BIH Program context outreach includes intensive and aggressive contact: one-on-one street meetings as well as neighborhood canvassing in apartment complexes, schools, community and civic organizations, sororities, fraternities, churches, and the community at large. Tracking of clients ensures continued engagement with the program. Supporting agencies are also helpful for reaching potential participants and tracking them to ensure continued engagement with the program (Figure 4).

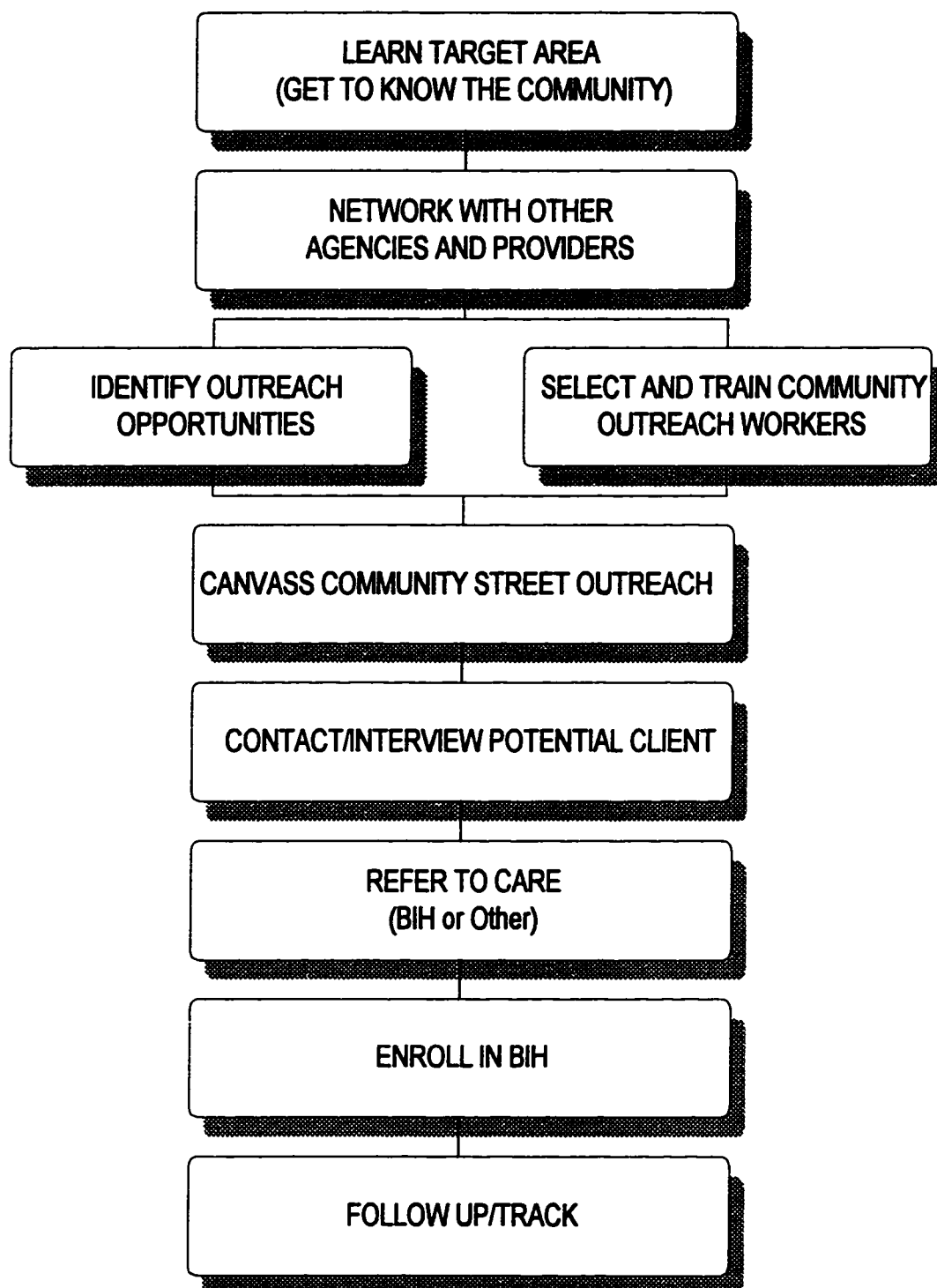
Case Management Intervention Model

Client health care needs represent a complex set of problems. A health care system that lacks cohesiveness when delivering services can sometimes interfere with, even prohibit, successful treatment and resolution of those problems. Common client issues that seriously impede health care delivery include barriers to accessing care, insufficient income, inadequate housing, unemployment, low self-esteem, scarcity of available resources, lack of support systems, chemical dependency, and emotional disability.

The role of BIH Program case managers is to address such client issues by creating a path to needed services in order to achieve health care goals for

Figure 4. California BIH Outreach and Tracking Model Steps

California BIH Outreach and Tracking Model



Developed by: East Bay Perinatal Council,
Health Tomorrows. Oakland, California

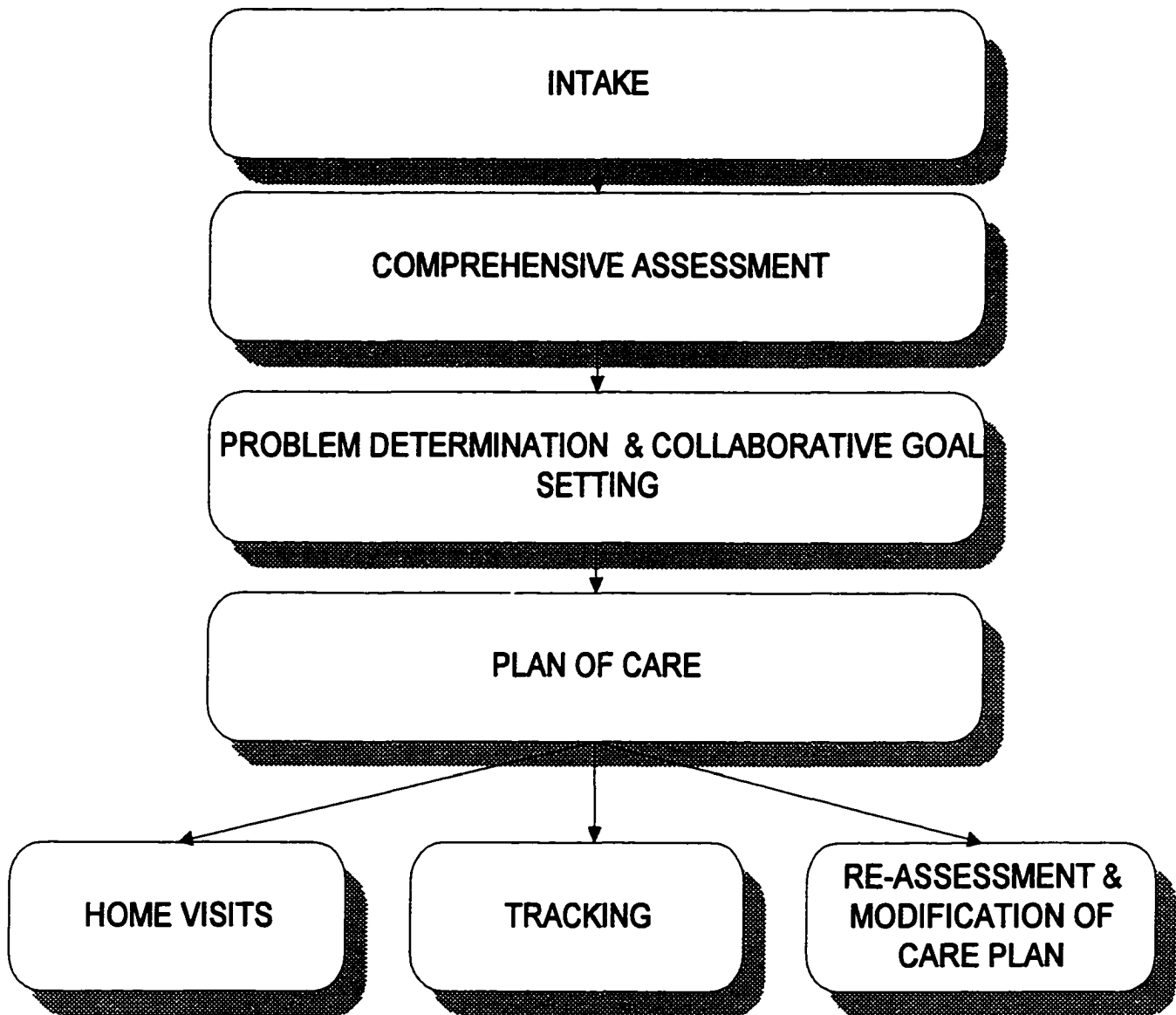
women and infants under one year of age. BIH projects are designed to maximize the coordination and integration of services to their populations, and to promote optimum health outcomes. Trouble-free navigation through the health and human services delivery system requires utilization of standardized case management approach programs (Figure 5).

Health Behavior Modification Intervention Model

Health problems impact quality of life, just as quality of life affects health. The correlation between adverse social and economic conditions and the level of morbidity and mortality in a community has been documented for many years. Poverty places families and individuals at risk for living in unhealthy conditions which directly cause poor pregnancy outcomes. Individually and in combination, factors such as unemployment, substandard housing, limited educational opportunities, inadequate nutrition resources, lack of health insurance, and restricted access to medical care impede a woman's ability to receive early and continuous prenatal and postnatal care and services. The health problems created in such situations, though serious, can be alleviated through the use of specific, appropriate interventions.

A health behavior modification program can be seen as an intervention whose objective is to develop, maintain and promote health-related behaviors, which prevent or modify illness or enhance the quality of life. The education component of the BIH Program differs significantly from generic health

California BIH Case Management Model



Developed by: County of Fresno Health Services Agency,
Fresno, California

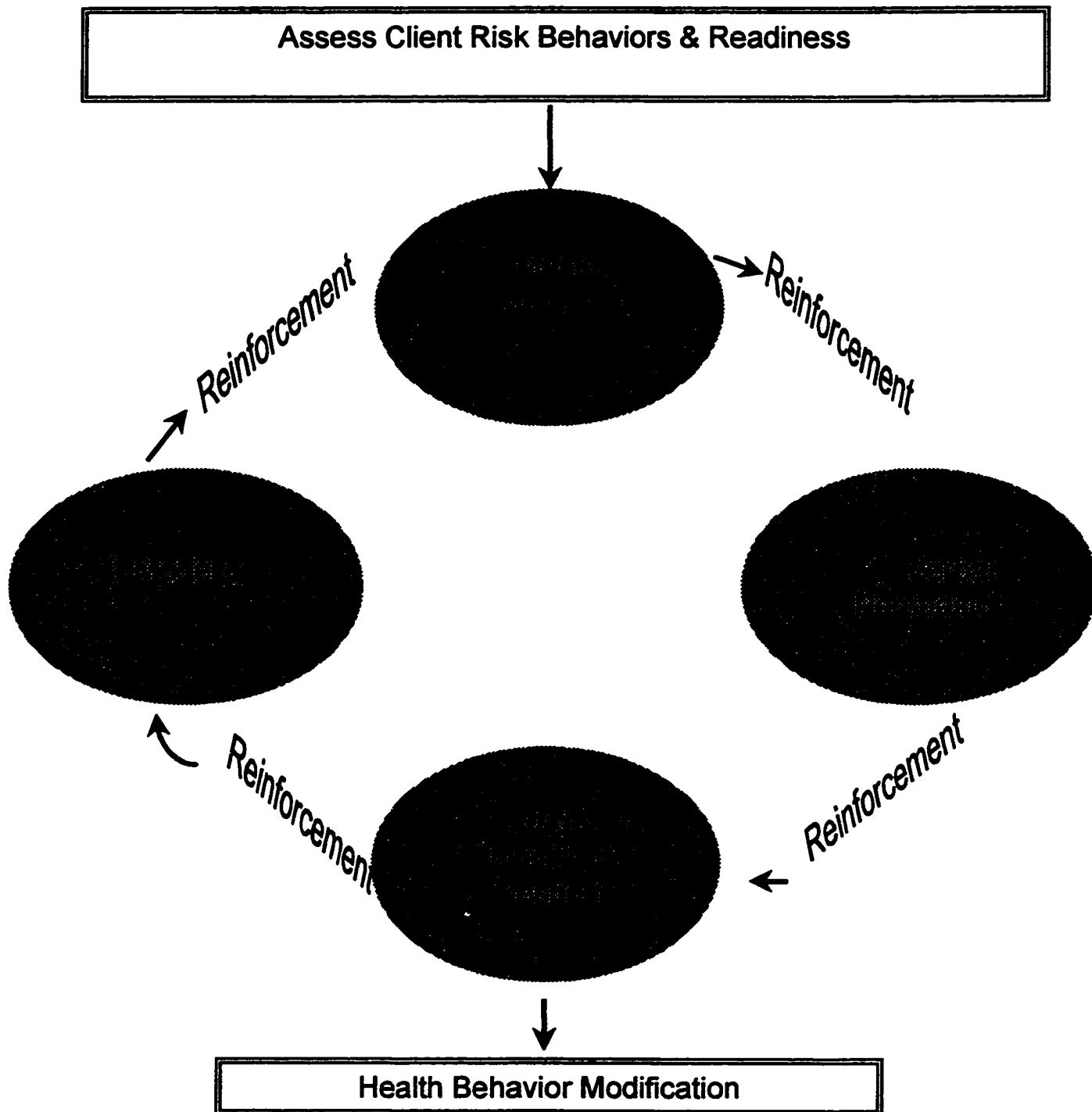
education. In order to be effective, the component must address the specific needs of the community by taking a comprehensive view of the pregnant woman and her life situation. Health education programs may be conducted one on one or in group education settings. It is critical to develop materials (videos, tabletop displays or pamphlets, for example) which are culturally relevant and appeal to the target audience at the appropriate educational level (Figure 6).

Social Support and Empowerment Intervention Model

Intensive one-on-one social support can help women remain in prenatal/postnatal services programs. Social support is an intervention that improves pregnancy outcomes indirectly by helping pregnant women to keep appointments and to obtain adequate prenatal care. It impacts pregnancy outcomes directly by interpreting and reinforcing provider instructions, reducing stress, assisting women to become part of supportive social networks, and providing appropriate education. Effective social support models communicate empathetically with their clients, educate women about prenatal care/labor and delivery/parenthood, provide referrals, and follow up on them to ensure that needed services are actually secured. Additionally, many models provide advocacy services for their clients in health and human service settings (hospitals, clinics, and welfare offices) and with law enforcement, mental health, and housing authorities.

Certain groups of people experience a sense of powerlessness when attempting to cope with their societal environment: the poor and oppressed,

California BIH Health Behavior Modification



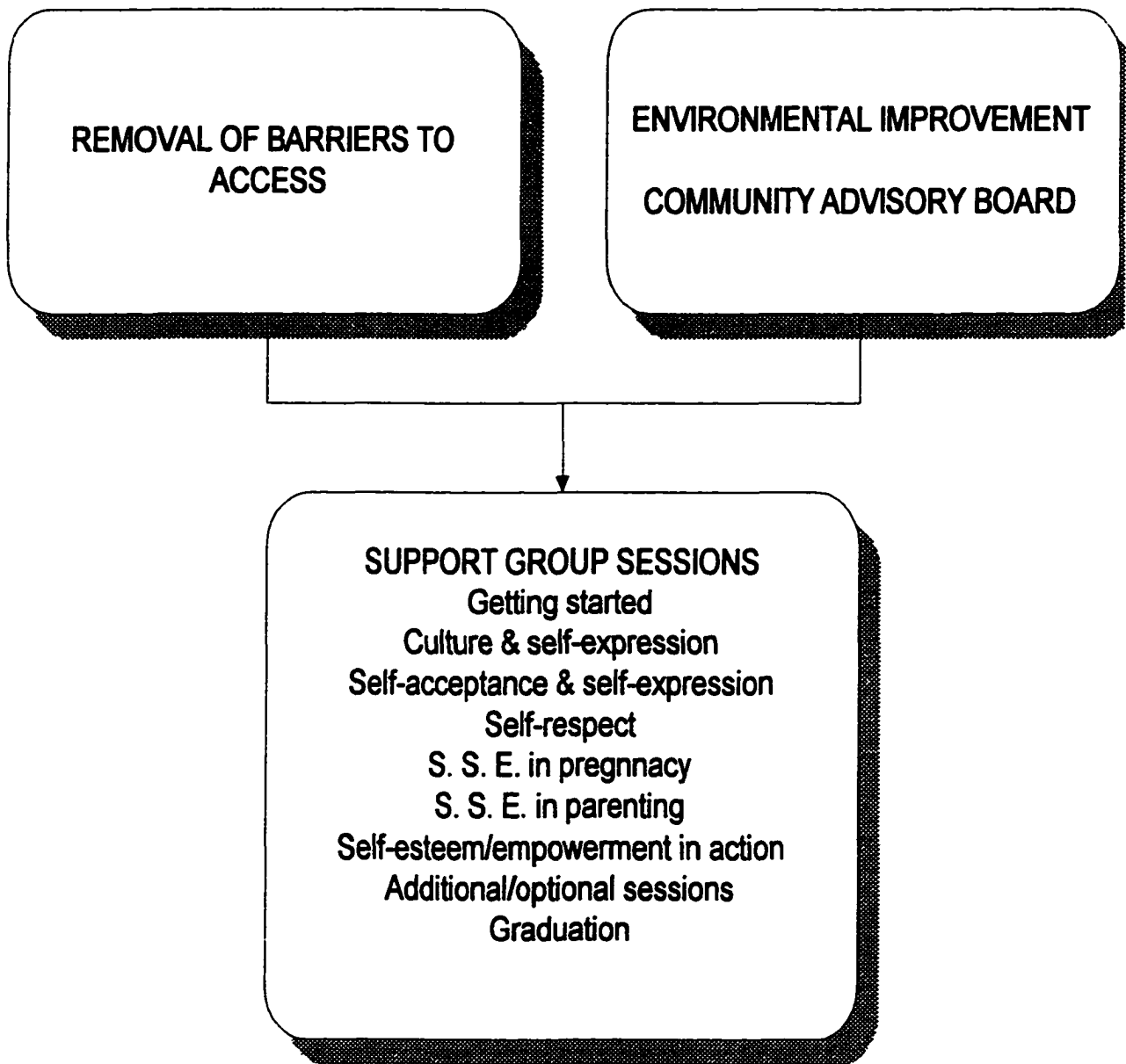
Developed by: San Joaquin County Health Care Services, Black Women's Initiative Project, San Joaquin, California

immigrants and refugees, minority groups, persons with addictions, and groups who are stigmatized, discriminated against or otherwise denied full access to societal resources. Within these larger groups there is a subgroup of pregnant/parenting women and teens who are doubly affected and who are sometimes unable to cope effectively with stressful situations or avail themselves of essential environmental resources such as prenatal care.

Empowerment is a process that enables those who feel such powerlessness to develop skills for implementing interpersonal influence, improving role performance, and developing an effective support system. By encouraging a client to participate in a group that has value and that aims to change its powerless status by acquiring the resources necessary to cope with the reality of its surroundings, the process of empowerment changes the perception of self as helpless victim (Figure 7).

Table 2 shows the models implemented by each health jurisdiction. All sites implemented Outreach and Tracking, eight sites implemented Social Support and Empowerment, five sites implemented Case Management and one site implemented Health Behavior Modification. Selection of models was based on local needs assessments.

California BIH Social Support & Empowerment Model



Developed by: San Joaquin County Health Care Services, Black Women's Initiative Project, San Joaquin, California

Table 2

Black Infant Health Model Implementation by Health Jurisdiction

Health Jurisdiction	Models Implemented
Alameda	Outreach, Case Management
Contra Costa	Outreach
Fresno	Outreach, Case Management
Kern	Outreach, Social Support & Empowerment
Long Beach	Outreach, Social Support & Empowerment
Los Angeles	Outreach, Social Support & Empowerment
Pasadena	Outreach, Social Support & Empowerment
Riverside	Outreach
Sacramento	Outreach, Case Management
San Bernardino	Outreach, Health Behavior Modification
San Diego	Outreach, Case Management
San Francisco	Outreach, Social Support & Empowerment
San Joaquin	Outreach, Social Support & Empowerment
San Mateo	Outreach, Social Support & Empowerment
Santa Clara	Outreach, Case Management, Social Support & Empowerment
Solano	Outreach, Social Support & Empowerment

All clients included in the study participated in the Outreach and Tracking intervention as well as a second intervention available at their health jurisdiction. In spite of the different levels of intervention participation by individual women, the researcher attempted to study intragroup variables of BIH participants and the impact of interventions that incorporated common elements to make them more culturally relevant to the African-American population. These elements, proposed by Willis (1998), are described in Chapter I.

Data Collection and Instrumentation

Instruments

Black Infant Health Data Forms. Data collection for the BIH Evaluation Project was conducted using a set of forms developed and tested to facilitate standardized practices among the 16 BIH health jurisdictions. After reviewing and assessing the data sources and the forms used by the 16 health jurisdictions, new data forms were developed and pilot tested. The final version of these data forms was used for data collection by all sites (Appendix A).

Data forms were formatted into a 35-page booklet. Data requirements included outreach contact, screening, demographics, medical history, reproductive history, current pregnancy, psychosocial factors, support systems, partner information, referrals, birth outcome, well-baby visits, follow-ups, and model-specific care plans.

Risk Screening Instrument. This was incorporated as part of the BIH core data set and corresponds to pages 3-1 and 3-2. Its purpose was to screen potential participants for level of risk, to determine eligibility for enrollment in the BIH Program and to provide the health jurisdictions with profiles of risk for individual women being served. It was developed, pilot tested, and validated with the assistance of Dr. Barbara Wheeler from the University of Southern California, under subcontract to the BIH Evaluation Project. A review of existing instruments and of pertinent literature identified items for inclusion. After nine

revisions the final self-administered instrument contained items that measured risk in twenty domains. These domains included:

- survival resources
- substance use
- lack of experience with infants
- lack of information regarding infant care
- lack of experience with pregnancy
- lack of prenatal care information
- risk for STDs
- exposure to violence
- gang influence
- victim/potential victim of violence
- obstetrical problems
- general health problems
- inadequate finances
- inadequate positive role models
- lack of self-esteem/empowerment
- relationship with men
- access to services
- comfort with system
- inadequate physical resources
- social network/social support

In order to validate the screening instrument a Staff Assessment Instrument was created which relied on expert judgment of risk in the twenty domains. It was to be completed by a BIH provider knowledgeable about the client who had been screened during the pilot-testing phase. The Staff Assessment Instrument asked the informant to rate the client's need in the twenty domains using a scale of 0-5. Mathematical models were used for predicting risk profiles. Several tests were conducted: 1) self-assessed predictive need was correlated with staff assessment of need; 2) algorithms were used to predict the profile of need for subjects in the pilot-testing phase and 3) providers from the sample site were asked to verify the correctness of the subject profiles. Predictive variables identified by the mathematical models documented the twenty items that appeared consistently in the equations, leading to their inclusion in the final instrument as strong risk predictors and areas of need. The instrument used contains 20 questions that lead to a score

on a scale of 0-33. Based on that, a client is classified as average risk (<12), medium risk (range of 12-16) one to two standard deviations higher than the mean, and high risk (scores > 16), two or more standard deviations higher than the mean. The screening instrument score determines eligibility for enrollment in the BIH Program. Cut-off criteria were established by each BIH health jurisdiction based on resources and caseload availability. Given that no site-specific analysis was included in this study, differences in cut-off criteria used by the various sites were not considered to have an effect on the study.

BIH Management Information System. The BIH Evaluation Project developed a Management Information System (MIS) for the purpose of collecting and processing data, tracking and monitoring clients' progress, generating reports and evaluating the program. The Black Infant Health Management Information System (BIH-MIS) is a database management system written in Microsoft's FoxPro 2.6 for Windows. It contains screens that match each of the data forms in the BIH data booklet. pcANYWHERE for Windows was the communication software that enabled data files to be downloaded from the health jurisdictions to the DHS in Sacramento and from there to the BIH Evaluation Project at San Diego State University.

Data Collection for California BIH Program

Data collected for the California BIH Program included information about clients enrolled in the program between July 1, 1996 and June 30, 1998.

Community health outreach workers, public health nurses, health educators, and other BIH staff were responsible for collecting data on all clients enrolled in the program. Each local health jurisdiction collected data on its clients using the BIH standardized data forms. A data set organized in a booklet was maintained for each client. Local health jurisdictions developed their own protocols for data collection; however, some guidelines were available to all sites and a core data set was required to be collected on all clients (pages 1 to 26). Model-specific data collection was required, depending on model participation. Self-reporting interviews were most commonly used. Data collection was initiated at the first outreach contact and continued for the duration of the client's participation in the program, in most cases up to one year after delivery.

Data entry from the BIH forms to the BIH-MIS was done locally, in most health jurisdictions by trained data-entering staff. Standardized assessment forms, service documentation forms (care plans) and the computerized service tracking system helped BIH staff to monitor and document risk profiles and delivery services. The California Department of Health Services, Maternal and Child Health Branch and the BIH Evaluation Project retrieved aggregated data (no identifiers) monthly from the health jurisdictions for evaluation purposes.

Data Collection for Study

Study data was collected from all pregnant women enrolled in the California Black Infant Health Program who delivered a singleton live birth between July 1, 1996 and June 30, 1998. Variables included were obtained

from data collected by the BIH Evaluation Project, using the BIH standardized data forms, and entered in the following screens of the BIH-MIS system: Client's Demographics, Client's Current Pregnancy, Client's Reproductive History, Psychosocial Factors, Client's Support System Information, and Birth Outcome (first infant) (Appendix A). The length of participation in BIH provided the measurement for the BIH intervention service delivery. Length of participation in BIH was determined by the BIH entry date, recorded in the Client's Overview screen, and the delivery date, recorded in the Birth Outcome screen.

pcANYWHERE for Windows was used to download aggregated data. As commonly occurs when secondary data is used, once information was abstracted it was necessary to modify it for the study. The large number of multicategorical response variables available in the BIH database required extensive reduction and recoding.

Study Variables

Variables were extracted from data recorded in the BIH data forms (Appendix A) and entered in the BIH-MIS. Appendix B provides a complete description of the study variables included, their definitions, recoding and data form pages where information was documented. The final codes used in the analysis are presented in the following description.

Birth Outcomes. Birthweight was dichotomized into two categories: normal birthweight (equal to or greater than 2,500 grams) and low birthweight (less than 2,500 grams). Data on birthweight was collected in pounds/ounces or

in grams. When the former occurred, the BIH-MIS system was programmed to do an automatic conversion to grams.

Gestational age was coded into two categories: less than 37 weeks and 37 weeks or greater. This variable was calculated based on the available EDC (expected day of confinement) or LMP (day of last menstrual period) in cases where an EDC was not available, and the delivery date.

Pregnancy outcome documented a live birth, neonatal death, fetal death, spontaneous abortion or therapeutic abortion. Only singleton live births were included in this category.

Sociodemographic Variables. Maternal age was calculated from the date of birth. Coding of this variable was categorized into five groups: younger than 18, 18 to 24, 25 to 29, 30 to 34 and 35 and older. Although the BIH Program target population was adult African-American women, a category of younger than 18 years of age was included because in an analysis of preliminary data, teenagers were identified as participants in BIH projects. They were accepted only when there was no more appropriate program to serve this age group in the geographical area (i.e., Adolescent Family Life Program) or when the teenager preferred to participate in the BIH Program instead of a program targeting her age group.

Marital status was coded into three categories: married (to the father of the baby or other than the father of the baby), single and divorced/widowed/separated. Employment status was coded into three

categories: not employed, part-time employed, which included seasonal and volunteer work, and full-time employed.

Education was coded into four categories: less than high school, high school graduate, vocational and any college. The less than high school included no education at all, attendance through elementary school, middle/junior high school and some high school attendance without graduating. High school graduate denoted formal completion of high school. Any college was defined as attendance at college/not degree, associate degree, bachelor's, master's or higher degree.

The income variable referring to a client's primary income source was coded into six categories: employment, unemployment insurance, partner, AFDC (Aid to Families with Dependent Children), other and none. Employment included income from employment or self-employment. The category of other included income from parents, SSI/disability, general relief, and county/court support.

Size of social support network was coded into four categories: none, one to two, three to four and more than four. Sources of social support included baby's father, client's mother, client's father, grandparents, sister, brother, other relative, friend, church member, community member, community agency, psychiatrist and/or substance abuse counselor. Two subcategories were created to identify whether social support from the father of the baby and the client's mother were included among the sources reported by the BIH participant.

Behavioral Variables. Cigarette use during pregnancy was coded into three categories. The no category included never/none or stopped before conception. A second category included quit during first or second trimester of pregnancy and a third category included continued smoking or resumed during pregnancy and use denied but suspected.

Alcohol use during pregnancy was coded into three categories. The no category included never/none or stopped before conception. A second category included quit during first or second trimester of pregnancy and a third category included consumption during pregnancy and use denied but suspected.

Drug use during pregnancy referred to the use of illicit drugs. This variable was dichotomized as no and yes. The no category included never used or no current use. The yes category included use during pregnancy of one or more illicit drugs (see data form, page 7-2) and use denied but suspected.

Previous Reproductive History Variables. The number of previous births (parity) was coded into three categories: none, one pregnancy and two or more previous pregnancies. Present pregnancy was not included in any of these categories.

Previous poor pregnancy outcomes were dichotomized as no and yes categories. The category no included none or unknown previous history of abruptio placenta, low birthweight, intrauterine fetal demise, neonatal death, placenta previa, preterm labor and preterm delivery. The yes category included history of one or more of the above-listed poor pregnancy outcomes.

The previous pregnancy health complications variable was dichotomized as no and yes categories. The no category included none or unknown history of anemia, pregnancy-induced hypertension, pyelonephritis and urinary tract infections. The yes category included history of one or more of the above-listed pregnancy health complications.

Complications of current pregnancy were dichotomized as yes and no categories for anemia, gestational diabetes, pregnancy-induced hypertension, pyelonephritis, urinary tract infections and any of the above.

Prenatal Care and BIH Participation Variables. Screening risk score was coded into three categories: low risk (<12), moderate risk (range of 12-16), one to two standard deviations higher than the mean, and high risk (scores > 16), two or more standard deviations higher than the mean. The screening instrument score determined eligibility for enrollment in the BIH Program. Cut-off criteria were established by each BIH health jurisdiction based on resources and caseload availability.

Trimester of prenatal care initiation was coded into three categories: first trimester as initiation of prenatal care before 13 weeks gestation, second trimester as initiation of prenatal care from 13 to 23 weeks gestation and third trimester as initiation of prenatal care from 24 or more weeks gestation. This variable was calculated based on the date of the first prenatal care visit and the EDC.

Trimester of entry into BIH was coded into three categories: first trimester if BIH entry occurred before 13 weeks gestation, second trimester if entry into

BIH occurred from 13 to 23 weeks gestation and third trimester if BIH entry occurred at 24 or more weeks gestation. This variable was calculated based on the date of BIH entry and the EDC.

Length of participation in BIH was coded into three categories: from 0 to 12 weeks, from 13 to 23 weeks and for 24 or more weeks. This variable was calculated based on the BIH entry date and the delivery date.

Data Validity and Reliability

BIH staff responsible for data collection and data entry in the health jurisdictions were required to participate in extensive initial training regarding use of data forms, interviewing skills, and the BIH-MIS system. Training continued to be provided on a quarterly basis over the next two years for new staff members and previously trained staff members who needed updates. A User's Guide (manual) was designed, pilot tested, and refined for use in training at all local sites.

The BIH evaluation team conducted quality checks at each site at least twice a year. These involved monitoring of hardware and software performance, as well as checks for accuracy of data collection and data entry in the BIH-MIS, using random verification techniques. Telephone and on-line technical assistance was provided to the sites as needed. Sites were assisted in the development and implementation of mandated quality assurance protocols.

Quality assurance efforts at the local level were further supported by the development of nine standardized reports. Elements identified by the quality

assurance reports were essential in determining a client's BIH status, the length of BIH participation and birthweight data. The quality assurance reports identified critical variable algorithms necessary for validity and reliability. These algorithms included: cases missing outreach dates or enrollment information, cases that reported enrollment information but no entry dates, entry dates but not enrollment information, screening dates but not screening scores, screening scores but not screening date, birth outcome but not delivery date, birthweight but not birth outcome information and cases that had documented birthweight of less than 500 grams.

A preliminary quality assurance assessment showed that a significant amount of information was missing, and that there were inconsistencies and high error rates in the data collected by the Alameda and San Francisco BIH health jurisdictions. Alameda reported 62 clients contacted and enrolled in the BIH Program. Of that total number, 34 case records (55%) lacked data related to contact dates, demographics, pregnancy history or pregnancy outcome. Of San Francisco's reported 466 contacts, 441 records (95%) lacked data related to enrollment dates, screening scores, demographics, pregnancy history or pregnancy outcome. In addition, visits to these two sites in May, 1998 revealed that the BIH intervention models had not been implemented as mandated by the California Department of Health Services, Maternal and Child Health Branch. Based on these findings, the researcher decided to eliminate these two sites as sources of data. Final data included in this study was obtained from the following sites: Contra Costa, Fresno, Kern, Long Beach, Los Angeles (GBBB

and REI-WIC), Pasadena, Riverside, Sacramento, San Bernardino, San Diego, San Joaquin, San Mateo, Santa Clara, and Solano. Subsequent quality assurance efforts were applied only to the data collected by the BIH health jurisdictions included in the study.

In May 1998, nine quality assurance assessments were produced from the total number of BIH cases stored in the BIH-MIS for each health jurisdiction. They were sent to the BIH sites with a request to complete and enter the identified missing data. The same assessments were run again in July 1998, to determine the impact of the step taken. Table 3 shows the results of these quality assurance efforts. The outreach date was the item most frequently missing. Eleven percent of the records assessed in May 1998 did not have this date recorded. Following the quality assurance efforts this was reduced to 2%. Enrollment information was missing from 4% of the records reviewed in May. By July this was reduced to 1%. Other data elements identified by the quality assurance reports were reduced to, or remained at, less than 1% of the total number of records in the database. There were a total of 833 errors/missing elements prior to the quality assurance efforts. By July 1998 this number had been lowered to 243, a reduction of 71%.

Table 3

**Validity of Data Elements: Number and Percentages of Records Missing
Elements Identified by the Quality Assurance Assessments, May and July 1998**

Quality Assurance Report	May, 1998		July, 1998	
	N=3302		N=3752	
	N	%	N	%
No Outreach Date	357	11	65	2
No Enrollment Information	129	4	37	1
Enrollment -- No Entry Date	75	3	9	<1
Entry Date -- No Enrollment Information	55	2	22	1
Screening Date -- No Score	8	<1	0	0
Screening Score -- No Date	9	<1	5	<1
Birth Outcome -- No Delivery Date	5	<1	1	<1
Birthweight -- No Delivery Date	9	<1	4	<1
Birthweight -- No Birth Outcome	16	<1	18	<1
Birthweight <500 Grams Report	37	1	0	0

In addition to the standard protocol for quality assurance used by the BIH Evaluation Project, extra steps were taken to ensure the quality of data used in this study. These efforts were focused on checking to make sure that a pregnancy outcome was recorded for all BIH clients who participated from July 1, 1996 and had an estimated date of delivery prior to July 1, 1998.

Additional quality assurance assessments were produced using the following criteria: 1) the BIH entry date was on or later than 7/01/96 or the BIH entry date was missing; 2) a client was enrolled or enrollment status was unknown; 3) the pregnancy outcome (delivery) date was missing and no pregnancy outcome was recorded; 4) the EDC was prior to 7/01/98 or was missing and 5) there was no closure date recorded. Telephone calls were made to all sites and reports were faxed with the request to check listed items.

A total of 3,275 records showed an enrollment date of July 1, 1996 or later, had an EDC prior to July 1, 1998 and were open cases. Of those, 45% of the clients had a recorded outcome, 13% were still pregnant, 3% entered BIH after delivery (postpartum), 22% had dropped out and 16% had records that were missing data on pregnancy outcome. By August, 1998, following quality assurance efforts, data showed a total of 3269 enrolled cases, of which 14% were still pregnant, 4% entered BIH after delivery (postpartum), 29% had dropped out or were missing data on pregnancy outcome. Table and Figures 8 and 9 compare data prior to and following quality assurance efforts on enrolled cases, status of cases and birthweight of live single births.

Table 4

Validity of Data Elements: Results of the Verification of Status and Pregnancy Outcomes of Clients with an Entry Date of July 1, 1996 or Later and an EDC Prior to July 1, 1998

	Prior to Quality Assurance		After Quality Assurance	
	Frequency	%	Frequency	%
Outcome Present	1495	46	1717	53
Still Pregnant	407	13	472	14
Postpartum	110	3	115	4
Dropped Out	738	22	911	28
Expected – Missing	525	16	54	2
Total	3275	100	3274	100

Final quality assurance efforts targeted the collection/verification of key data elements that were either missing or inconsistent in more than 10% of the cases included in the study. These data elements included EDC, size of social network and trimester of initiation of prenatal care. In order to improve the accuracy of gestational age data, birthweights were verified by using estimates in relation to gestational weeks. Estimated fetal weight references used were as follows: 1) for 24 gestational weeks - 820 grams, 2) for 28 weeks – 1,300 grams, 3) for 32 weeks – 2,100 grams and 4) for 36 weeks – 2,900 grams. Questionable birthweights related to gestational age and deliveries of less than 23 or more than 44 weeks gestation were verified.

In summary, several strategies were used to ensure the validity and integrity of the data used in this study. These strategies included the verification of:

- **outreach contact date**
- **enrollment date and enrollment status**
- **screening date and screening scores**
- **client status and pregnancy outcome**
- **expected date of confinement (EDC) and birthweight**
- **social network size**
- **prenatal care initiation**
- **accuracy of missing values coding for all variables by examination of frequency distributions**
- **checking of data formats to detect errors or inaccurate coding and to ensure that the elements in the database matched those in the data dictionary, and**
- **examination of frequency distributions to ensure accuracy of range distribution and appropriate variability**

Figure 8. BIH Participants' Status and Pregnancy Outcome Prior to Quality Assurance Efforts

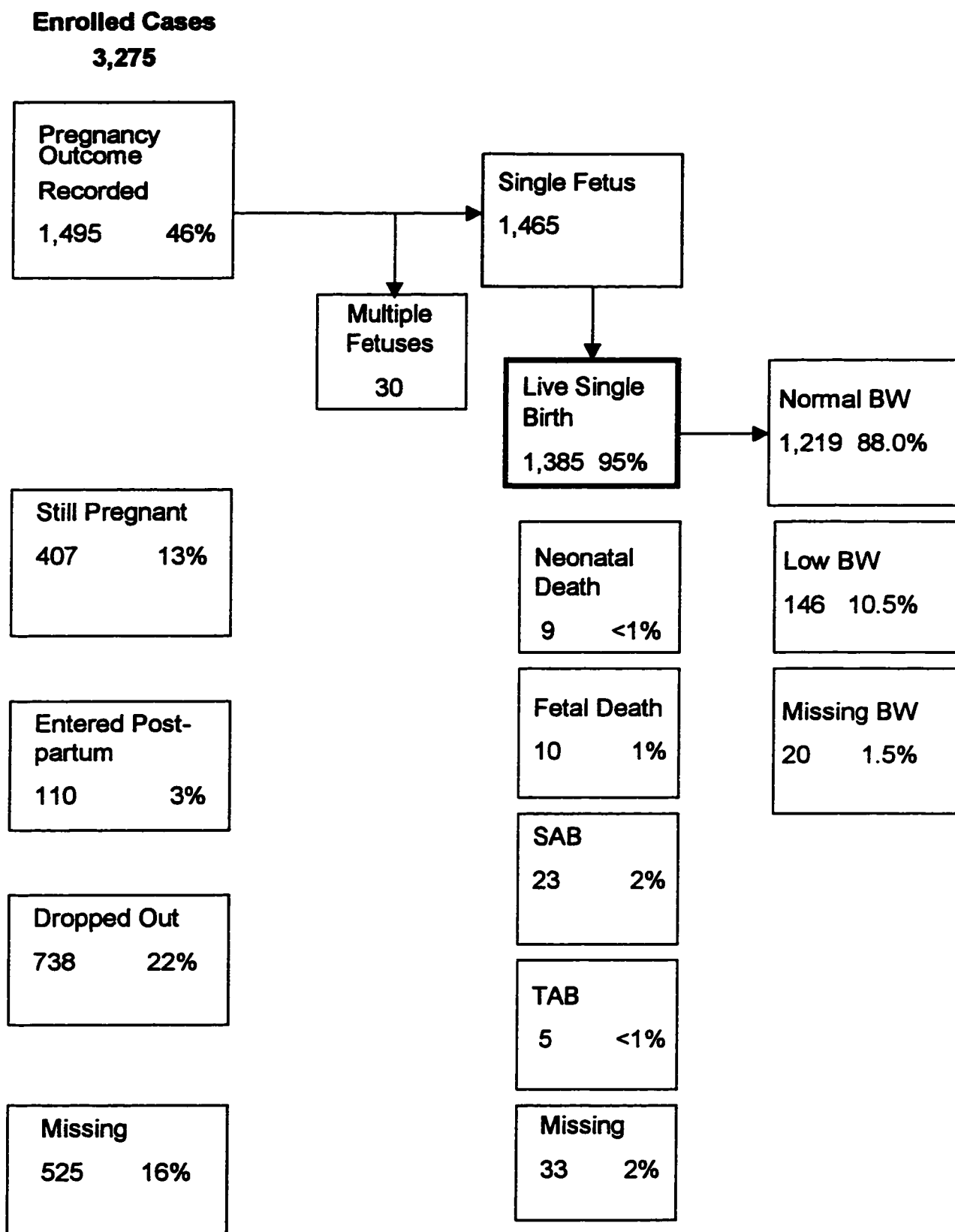
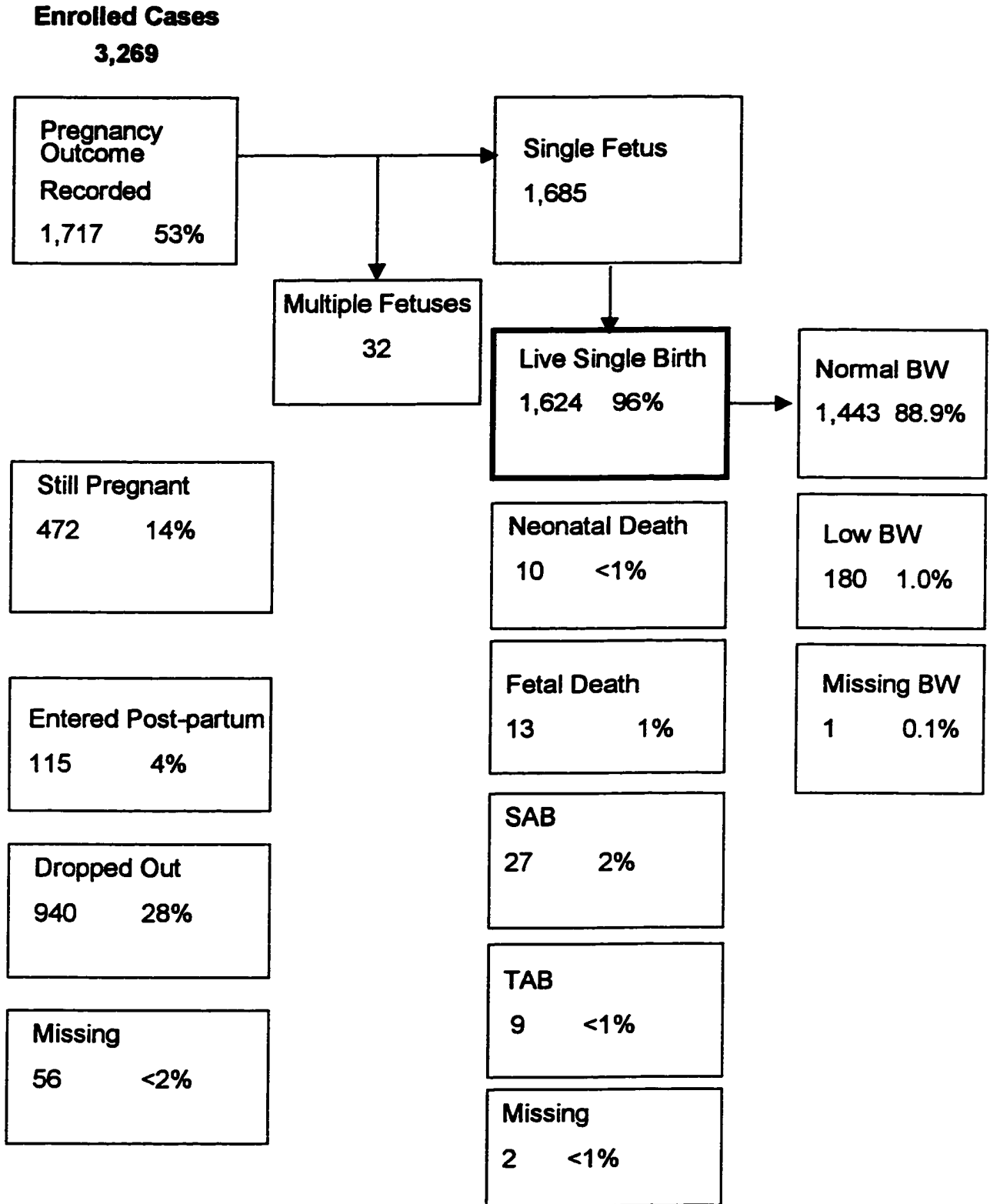


Figure 9. BIH Participants' Status and Pregnancy Outcome After Quality Assurance Efforts



Assessment of Bias. Table 5 illustrates the results of the efforts launched to assess potential bias. Preliminary examination of frequency distributions of the NBW and LBW groups showed that the LBW group had higher percentages of missing data in the categories of screening score, age, marital status, employment, education, income source, number of previous pregnancies, cigarette/alcohol/drug use and size of social network. Efforts were launched to collect the missing data in order to decrease the potential bias presented by the unknown status of the LBW group in relation to these variables. The goal was to reduce the amount of missing data from these categories to obtain a similar distribution to that of other categories listed above for the LBW group.

Table 5

Validity of Data Elements: Reduction of LBW Group Data Missing Variables Reported to Have Higher Missing Percentages Than the NBW Group

Variables	Records Missing Data Prior to Quality Assurance		Records Missing Data After Quality Assurance	
	N=180		N=180	
	Frequency	%	Frequency	%
Screening Score	5	2.8	3	1.6
Age	11	6.0	5	2.8
Marital Status	10	5.5	6	3.3
Employment	14	7.7	8	4.4
Education	14	7.7	9	5.0
Income Source	12	6.7	5	2.8
Previous Pregnancies	5	3.0	2	1.1
Cigarette Use	18	10	8	4.4
Alcohol Use	22	12.2	9	5.0
Drug Use	28	15.5	14	7.7
Social Network Size	33	18.3	21	11.6

Data Analysis

Data analysis was conducted using the Statistical Package for the Social Sciences computer software package (SPSS 7.5). The first phase of the analysis included data reduction and recoding to create a final data file usable in SPSS. BIH-MIS data files were adapted to a format compatible with SPSS. All variables included were categorical variables. Descriptive data analysis was performed, including examination of the frequency distributions and calculations of means and standard deviations of all core variables. Chi-square tests were conducted on all variables to identify potential confounders. In order to enhance the organization and structure of the analysis, a detailed plan for each study question was developed.

Research Question #1

This question addressed the association of sociodemographic and behavioral characteristics and LBW. Chi-square test using 2X2 contingency tables and the Crosstabulation program in SPSS for Windows were used to assess statistically significant associations between any two categorical variables. A p-value of <0.05 was used to test for statistical significance not due to chance alone. Birthweight was used as a dichotomous dependent variable: normal birthweight (NBW = $\geq 2,500$ g.), low birthweight (LBW = $< 2,500$ g.). Sociodemographic and behavioral characteristics were used as independent variables.

Research Question #2

This question addressed the association between reproductive history, perinatal factors and LBW. As in question #1, Chi-square test, 2X2 contingency tables and crosstabulations were used to assess statistically significant associations between any two categorical variables. A p-value of <0.05 was also used to test for statistical significance not due to chance alone. Birthweight was used as a dichotomous dependent variable (NBW = $\geq 2,500$ g., LBW = $< 2,500$ g.), and reproductive history and perinatal factors were used as independent variables.

Research Question #3

This question addressed the association between BIH participation and LBW. BIH participation was used to measure service delivery. BIH clients participated in Outreach and Tracking and any one of three other intervention models: Case Management, Social Support and Empowerment, or Health Behavior Modification. Outreach and Tracking was used as a null intervention, given that all BIH clients participated in this intervention. No evaluation of individual interventions was done. Instead, the study attempted to look at overall BIH participation and outcomes using birthweight as a dichotomous dependent variable and length of participation in BIH as an independent variable. Chi-square test, 2X2 contingency tables and crosstabulations were also used to assess statistically significant associations between any two categorical variables. A p-value of <0.05 was used to test for statistical significance. Birthweight was used as a dichotomous dependent variable (NBW = $\geq 2,500$ g.,

LBW = < 2,500 g.), and BIH participation variables were used as independent variables.

Research Question #4

This question addressed the probability of developing a model for predicting LBW using BIH participation and sociodemographic, behavioral characteristics and perinatal factors. Multivariate analysis and logistic regression techniques were used to estimate the adjusted odds ratios (OR) and 95% confidence intervals (CI) for the association between selected variables, controlling for the effects of confounding factors. Birthweight was used as a dichotomous dependent variable. Sociodemographic and behavioral characteristics, previous reproductive history and perinatal factors were used as independent variables. Age, education, marital status, entry into prenatal care, and entry into BIH variables were used as potential confounding factors.

Model-building strategies were employed for developing a logistic regression model to predict LBW. Figure 10 shows the overall analysis framework used in this study. The model-building strategies recommended by Hosmer and Lemeshow (1989, pp. 82-91) were used in the following manner:

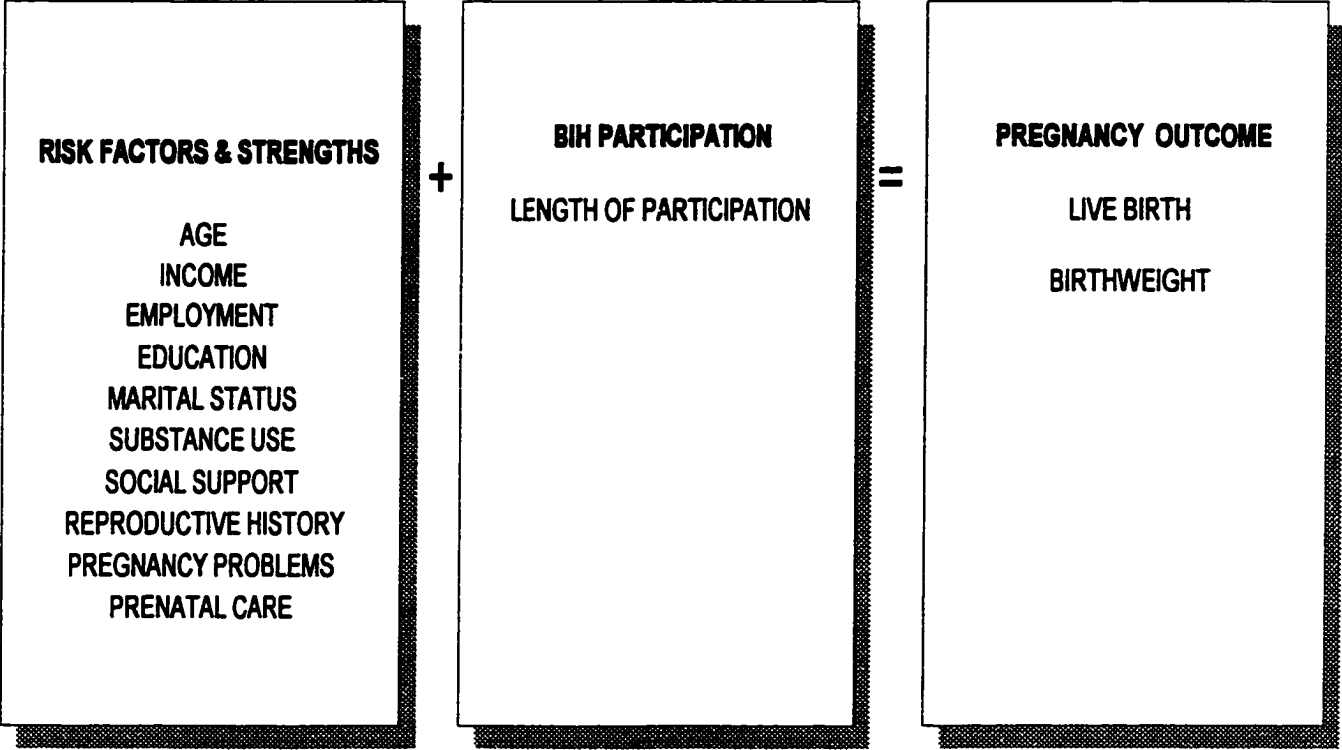
1. A univariate analysis of each variable was conducted. Contingency tables and the likelihood ratio Chi-square tests were used. Once the univariate analysis was completed, variables were selected for the multivariate analysis. If a variable had p-value <0.25 in the univariate test, it was considered as a candidate for the multivariate model, as were the variables known to have

biological significance. A p-value of 0.25 was used as recommended by the authors. Their recommendation is based on the work of Bendel and Afifi (1977) and Mickey and Greenland (1989), who maintain that a more traditional p-value (0.05) often fails to identify important variables. Once the variables were identified they were integrated into the initial model.

2. Correlation and interaction terms procedures were conducted.
3. Verification of the importance of each variable was conducted by comparing each estimated coefficient with the coefficient from the univariate analysis containing only that variable.
4. Finally, the goodness-of-fit test was used to assess the effectiveness of the model in describing the outcome variable.

Figure 10. California Black Infant Health Analysis Framework

CALIFORNIA BLACK INFANT HEALTH ANALYSIS FRAMEWORK



Protection of Human Subjects

Clients' rights, interests, and sensitivities were safeguarded by complying with protocols established by the Committee for the Protection of Human Subjects (CPHS) of San Diego State University. Protocol approval was first received in July, 1996 and consecutive renewals were obtained subsequently (Appendix C). The study's research design and methodology were also reviewed by the Committee for the Protection of Human Subjects of the University of San Diego and approval was obtained March 31, 1998 (Appendix D).

This study used secondary data. The BIH Management Information System used for data collection and downloading included a file-creating program that eliminated all client identifiers (i.e., name, social security number, address, and phone number). This stripping program, which allowed data to be accessed only in an aggregate format, was used to download the information collected and entered by the sixteen local BIH health jurisdictions.

Potential Study Bias/Limitations

Potentially, biases can result from distortion of the effect of unmeasured risk factors related to exposure or differences in the accuracy of the information obtained. Among potential biases anticipated, the most significant ones follow.

Selection Bias

Representativeness of the general population may be questionable since the study population excluded both African-American pregnant women who refused to participate in the program and those lost to follow-up.

Interventions Bias

Some bias relative to quality of service delivery may have been present in this study. As health jurisdiction staff members became more comfortable and more skilled at intervention delivery, second-year participants may have benefited from better services and more frequent contacts than first-year participants. Better tracking may have been provided during the second year also, perhaps decreasing the dropout or lost-to-follow-up rate.

Information Bias

This is one of the most significant potential sources of bias in the study. Differential errors can be difficult to avoid when information is obtained by interviews. Self-reporting and accuracy of recollection must be considered as a potential source of bias, especially when a significant amount of data is collected retrospectively. In theory, the error distribution in this study should have been the same for the normal birthweight and low birthweight groups.

Confounding

This may have been present as a result of confounders that were unknown or unmeasured. Confounders are one or more risk factors whose simultaneous control in the analysis will correct for joint confounding in the estimation of the effect under study. In the case of this study, potential unknown

confounders may have been present and not controlled in the analysis. For example, socioeconomic status is known to influence pregnancy outcomes.

Only five sociodemographic factors were included in this study, excluding others such as occupation and housing.

Site Differences

Potential bias related to the differences in or lack of quality assurance protocols established in the various sites may have been present. Also, staffing patterns, qualifications and turnover may have influenced the study results.

Categorization of Variables

All variables included in the study were categorical variables.

Birthweight was use as a two-category variable (dichotomized). In some cases the used of categorical variables conceptually and analytically make this convention somewhat dubious and possibly misleading. Differences are not always clearly defined and the parameters used to define the categories may be somewhat arbitrary. However, categorization in public health sciences follows a standard nationwide and internationally.

Summary

This study proposed the use of quantitative research methodology. A prospective study design was used. Secondary standardized data related to selected sociodemographic, behavioral, maternal and perinatal factors, and participation in BIH activities up to delivery were extracted from the California BIH Management Information System. Sociodemographic, behavioral, reproductive history, perinatal, BIH participation and birthweight variables were included and multivariate and univariate analysis, multiple logistic regression and Chi-square tests were employed for the analysis.

CHAPTER IV

RESULTS

Introduction

This study investigated intragroup variability and the impact of culturally appropriate interventions on African-American pregnant women participating in the California Black Infant Health Program. Using a prospective study design the research sought to offer insight into the causes of African-American infant mortality, highlight the unique attributes of African-American women as a whole, and provide a better understanding of the differences in group factors that continue to place African-American women at greater risk for poor pregnancy outcomes.

This chapter describes sociodemographic and behavioral characteristics and perinatal factors of the study population, both as a whole and by subgroups, and provides data analysis results. Specific findings relative to the research questions are presented. The following questions are addressed:

- 1. What is the association between sociodemographic and behavioral characteristics and low birthweight outcomes of BIH participants?**
- 2. What is the association between reproductive history and perinatal factors and low birthweight outcomes of BIH participants?**

3. **What is the association between the length of participation in BIH and low birthweight outcomes of BIH participants?**
4. **Can a predictive model for LBW be developed using BIH length of participation, controlling for sociodemographic and behavioral characteristics and perinatal factors?**

The chapter is divided into three sections: a detailed description of the study population, results by research question, and a summary of the univariate and multivariate analyses.

Description of the Study Population

A total of 3,269 BIH participants delivered during the study period. Thirty-two multiple births were excluded from the sample. In total, 1,685 women had a singleton birth. Of these, 1,624 (96%) were live births, 10 (<1%) were neonatal death cases, 13 (1%) were fetal deaths, 27 (2%) had a spontaneous abortion, 9 (<1%) had a therapeutic abortion and 2 (<1%) cases had an unknown outcome.

The total number of cases studied was 1623. They represented 50% of the California BIH population during the study period. Participants included BIH clients from Contra Costa, Fresno, Kern, Long Beach, Los Angeles, Pasadena, Riverside, Sacramento, San Bernardino, San Diego, San Joaquin, San Mateo, Santa Clara, and Solano health jurisdictions who were enrolled in at least one of four BIH intervention models (Outreach and Tracking, Case Management, Health Behavior Modification, Social Support and Empowerment) on July 1, 1996 or later and who had a single live birth prior to July 1, 1998.

Sociodemographic Characteristics

Table 6 and Figure 11 display the sociodemographic characteristics of the study population.

Age. The women were between 13 and 46 years old, reflecting a mean age of 24, a median age of 22 and a mode of 19 years. There were 9.7% younger than 18, just over half (52.1%) were 18 to 24, 18.0% were 25-29, 10% were 30-34, and 7.8% were 35 or older. The percentage of young women (<18) is low because the BIH Program targeted adult African-American women. Those younger than 18 were accepted into the program only when there was no more appropriate program to serve them in the geographical area or when the teenager preferred to participate in the BIH Program rather than one targeting her age group.

Marital Status. Eighty percent of the women were single, 12.6% were married and 4.1% were divorced, widowed or separated.

Employment Status. Most women (78.3%) were not employed outside the home. Some reported that they worked part-time (9.8%) and 6.1% reported working full-time. This was consistent with study data indicating that the most common source of income was governmental assistance (AFDC: Aid to Families with Dependent Children).

Education. Almost half of the women (43.3%) had not completed high school, 31.6% had graduated, 18.4% had some college education and 2.3% had some vocational training.

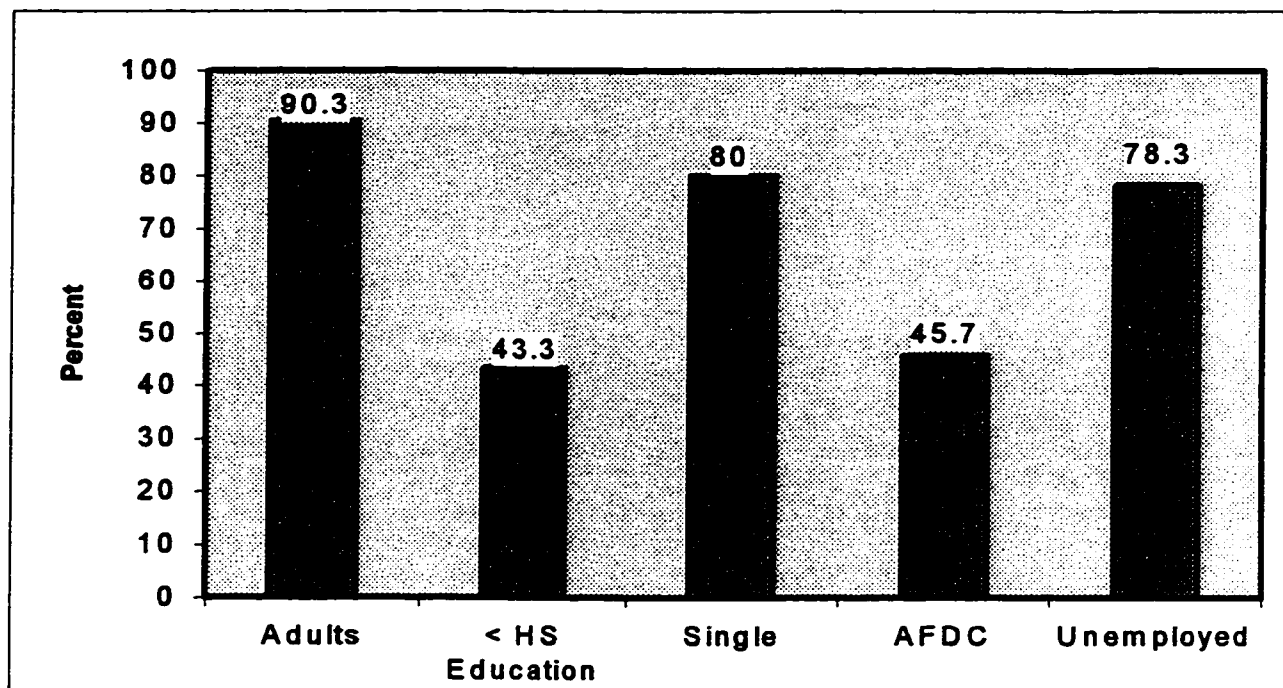
Income Source. AFDC was the most common source of income (45.7%) reported. Employment was reported as the source of income for 13.9%, employment insurance for 10.0% and a partner for 3.1%. Other sources of income were reported in 19.0% of the cases and 4.2% reported that they had no source of income.

Table 6

Sociodemographic Characteristics (N=1623)

Variable	N	Percent %
Age		
< than 18	158	9.7
18-24	846	52.1
25-29	292	18.0
30-34	162	10.0
≥ 35	127	7.8
Missing	38	2.3
Marital Status		
Married	204	12.6
Single	1299	80.0
Div/wid/sep	66	4.1
Missing	54	3.3
Employment Status		
Not Employed	1271	78.3
Part-time	159	9.8
Full-time	99	6.1
Missing	94	5.8
Education		
<High School	702	43.3
High School Graduate	513	31.6
Vocational	37	2.3
Any College	298	18.4
Missing	73	4.5
Income Source		
Employment	226	13.9
Unemployment Insurance	162	10.0
Partner	50	3.1
AFDC	742	45.7
Other	309	19.0
None	68	4.2
Missing	66	4.1

Figure 11. Histogram of Selected Sociodemographic Characteristics



Behavioral Characteristics

Table 7 and Figure 12 present the behavioral characteristics of the study population during pregnancy in relation to cigarette, alcohol and illicit drug use. Missing data ranged from 6.0% to 9.9% in the case of drug use because of the difficulty collecting information related to highly sensitive and socially-frowned-on behavior such as the use of illicit drugs. The chemical use variables include responses obtained by the assessment of BIH staff members regarding denial but suspicion. This assessment was usually done after three or more contacts with the client and when some level of rapport had been established between client and provider.

Cigarette Use. Some women (7.3%) reported that they smoked in pregnancy but had stopped during the first or second trimester. Twelve percent of the women reporting smoking throughout their pregnancy or denied smoking but the BIH staff member conducting the interview suspected it.

Alcohol Use. Drinking during pregnancy was denied by 82.1% of participants. Stopping alcohol use during the first or second trimester of pregnancy was reported in 7.5% of the cases and 3.8% stated that they drank alcohol during pregnancy or denied alcohol consumption but the BIH staff member conducting the interview suspected it.

Illicit Drug Use. Use of illicit drugs during pregnancy was denied by 77.5% of the cases and 12.6% claimed they used drugs during pregnancy or use was denied but suspected by the BIH staff member conducting the interview.

Table 7

Behavioral Characteristics (N=1623)

Variable	N	Percent %
Cigarette Use		
No	1211	74.6
Quit First or Second Trimester	119	7.3
Smokes or Suspected	195	12.0
Missing	98	6.0
Alcohol Use		
No	1333	82.1
Quit First or Second Trimester	122	7.5
Drinks or Suspected	62	3.8
Missing	106	6.5
Drug Use		
No	1258	77.5
Yes or Suspected	204	12.6
Missing	161	9.9

Figure 12. Graph of Selected Behavioral Characteristics

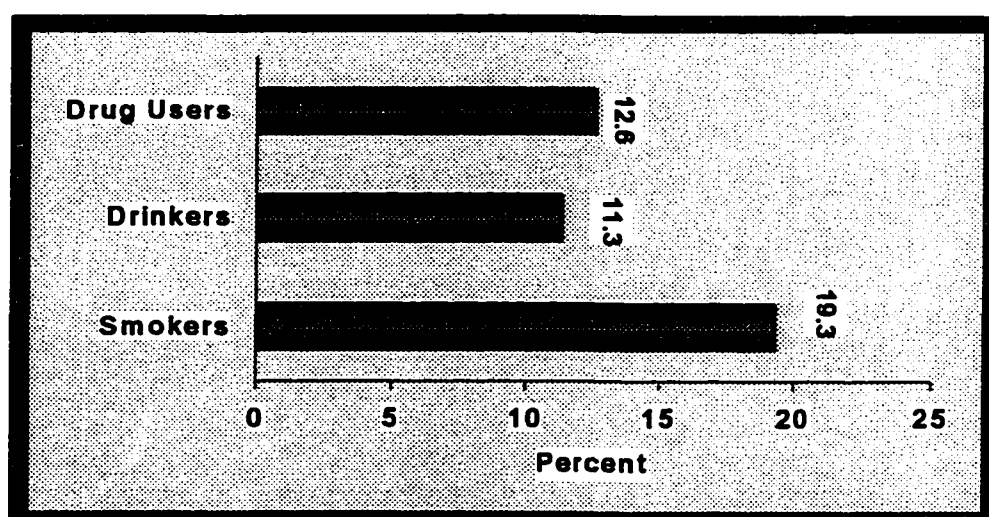


Table 8 illustrates the cigarette, alcohol and drug use by group age (adults and adolescents).

Table 8

Behavioral Characteristics by Age Group

Age Group	Behavioral Characteristic		p Value
	Cigarette Use (N=1496)		
	No	Yes	
Adults (≥ 18 years old)	78.3%	21.7%	0.001
Adolescents (<18 years old)	90.2%	9.8%	
	Alcohol Use (N=1448)		
	No	Yes	
Adults (≥ 18 years old)	87.4%	12.6%	0.015
Adolescents (<18 years old)	94.1%	5.9%	
	Illicit Drug Use (N=1440)		
	No	Yes	
Adults (≥ 18 years old)	86.1%	13.9%	1.000
Adolescents (<18 years old)	86.1%	13.9%	

Statistically significant associations were found between age and cigarette and alcohol use in pregnancy. Adults were more likely to smoke ($p=0.001$) and more likely to drink alcohol in pregnancy ($p=0.015$) than adolescents. On the other hand, no statistically significant association was found between drug use and age. Adults were as likely as adolescents to use illicit drugs in pregnancy.

Social Network Size and Composition

Sources of social support included baby's father, client's mother, client's father, grandparents, sister, brother, other relative, friend, church member, community member, community agency, psychiatrist and/or substance abuse counselor. Two additional subcategories were created to identify whether social support from the father of the baby and the client's mother were included among the sources reported by the BIH participant. Table 9 shows size of social network and indicates whether or not the father of the baby and/or the client's mother were included.

A small percentage of the women (3.6%) reported not having anyone in their social support network. Just over one third (35.6%) reported social support from one or two sources, 27.4% from three or four, and 21.4% from more than four sources. Only 46.5% reported receiving social support from the father of the baby, a figure that may be related to the high percentage of single women in the sample. Social support from the client's mother was reported by 48.7%.

Table 9

Social Network Size and Composition (N=1623)

Variable	N	Percent %
Size of Social Network		
None	59	3.6
1-2 Network Supports	578	35.6
3-4 Network Supports	444	27.4
> 4 Network Supports	348	21.4
Missing	194	12.0
Baby's Father Included in Social Network		
Yes	754	46.5
No	869	53.5
Client's Mother Included in Social Network		
Yes	833	51.3
No	790	48.7

Previous Reproductive History

Number of Previous Births. This variable was coded into three categories: none, one birth and two or more previous births. The present birth (Index Child) was not included. A significant number were primigravidas (40.5%); the pregnancy that qualified them for enrollment in the BIH Program during the study period was their first. One previous pregnancy was reported by 23% of the participants and 35.2% reported two or more.

Previous Poor Pregnancy Outcomes. This variable was dichotomized into no and yes categories. The no category included none or unknown previous history of abruptio placenta, low birthweight, intrauterine fetal demise, neonatal death, placenta previa, preterm labor and preterm delivery. The yes category included history of one or more of the above-listed poor pregnancy outcomes. Of the women who had previous births, 85.5% of the cases reported no/unknown previous history of abruptio placenta, low birthweight, intrauterine fetal demise, neonatal death, placenta previa, preterm labor and preterm delivery. Previous history of one or more of the above-mentioned poor outcomes was reported by only 14.5% of the participants.

Previous Pregnancy Health Complications. This variable was dichotomized into no and yes categories. The no category included none or unknown history of anemia, pregnancy-induced hypertension, pyelonephritis and urinary tract infections. The yes category included history of one or more of the above-listed pregnancy health complications. Most women (85.5%) denied any of the health complications referred to above.

Perinatal and BIH Participation Variables

Risk Screening Scores. These are presented in Table 10. They were obtained from the Screening Instrument tool (see Chapter III) that was used to determine eligibility for enrollment in the BIH Program. The instrument provided a score on a scale of 0-33. A client was determined to be at low risk (<12), moderate risk (range of 12-16) or high risk (scores >16). Cut-off criteria were

established by each BIH health jurisdiction based on resources and caseload availability. Twenty percent of the cases were identified as high risk, 39.4% as moderate risk and 37.5% as low risk.

Table 10

Risk Screening Scores (N=1623)

Score	N	Percent %
Low Risk (<12)	611	37.6
Moderate Risk (12-16)	637	39.2
High Risk (>16)	327	20.1
Missing	48	3.0

Current Pregnancy Complications. Anemia was reported by 15.3% of the cases, gestational diabetes by 2.2%, pregnancy-induced hypertension by 3.0%, pyelonephritis by 0.4% and urinary tract infections by 5.7%. The categories were not mutually exclusive.

Prenatal Care Initiation by Pregnancy Trimester. Table 11 shows this variable coded into three categories: first trimester as initiation of prenatal care before 13 weeks gestation, second trimester as initiation of prenatal care from 13 to 23 weeks gestation and third trimester as initiation of prenatal care from 24 or more weeks gestation. Calculations were based on the date of the first prenatal care visit and the EDC. The importance of prenatal care has been well

documented and pregnant women are strongly encouraged to begin it as early as possible. Nearly half of the women in this study initiated prenatal care during the first trimester of pregnancy (45.2%). Almost 27% entered prenatal care during the second trimester, and 17.4% began late in pregnancy. The percentage of BIH participants initiating prenatal care in the first trimester compares unfavorably with state and national expectations. Despite quality assurance efforts, missing data for this variable was 10.8%.

BIH Entry by Pregnancy Trimester. As with prenatal care initiation, this variable was coded into three categories: first trimester if BIH entry occurred before 13 weeks gestation, second trimester if entry into BIH occurred from 13 to 23 weeks gestation and third trimester if BIH entry occurred at 24 or more weeks gestation. Calculations were based on the date of BIH entry and the EDC.

Table 11 illustrates the results.

Table 11

Prenatal Care Initiation and BIH Entry by Pregnancy Trimester (N=1623)

Pregnancy Trimester	Prenatal Care Initiation %	BIH Entry %
First Trimester	45.2	10.8
Second Trimester	26.6	31.0
Third Trimester	17.4	53.3
Missing	10.8	4.9

Although the goal of the BIH Program was to reach women as early as possible in pregnancy, only 10.8% enrolled in the program during their first trimester. Thirty-one percent enrolled in the second trimester and the majority entered BIH during their third trimester. Of interest is the difference between the percentage of women initiating prenatal care during the first trimester of pregnancy (45.2%) and the percentage of women who entered BIH in the first trimester (10.8%). This perhaps speaks to a lack of knowledge about BIH or a lack of interest on the part of the prenatal care provider community.

Length of BIH Participation. This variable was coded into three categories: fewer than 12 weeks, from 13 to 23 weeks and for 24 or more weeks. It was calculated based on the BIH entry date and the delivery date. Results are presented in Table 12. Most women (43.4%) participated in BIH fewer than 12 weeks during the pregnancy period, 35.4% of the women participated in BIH from 13 to 23 weeks, and only 21.0% participated in BIH from 24 to 44 weeks. Inconsistencies in results related to trimester of entry into BIH and length of BIH participation may be due to inaccuracies in the calculation of gestational age. Ideally, an earlier entry into BIH ensures more benefits from BIH interventions, which should result in better pregnancy outcomes.

Table 12

Length of BIH Participation (N=1623)

Variable	N	Percent %
< 12 weeks	704	43.4
13 to 23 weeks	575	35.4
24 to 44 weeks	341	21.0
Missing	3	0.2

Gestational Age. Table 13 shows the gestational age distribution of the study population. This variable was calculated based on EDC (or LMP if EDC was not available) and delivery date. In the sample, 12.3% of the cases had a preterm delivery (less than 37 weeks gestation) and 87.7% had a full-term delivery (37 or more weeks of gestation).

Table 13

Gestational Age (N=1473)

Variable	N	Percent %
< 37 weeks	181	12.3
≥37 weeks	1292	87.7

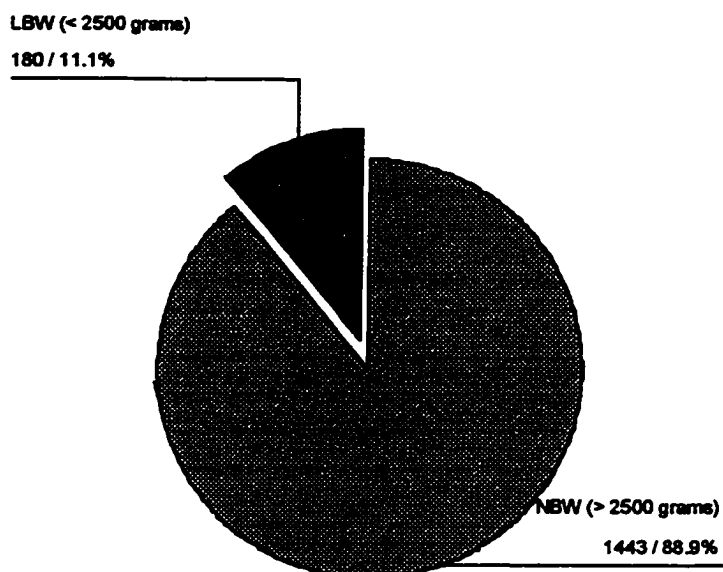
Additional analysis was conducted between age, behavioral characteristics, prenatal care initiation and BIH entry. It was hypothesized that

teenagers were more likely to initiate prenatal care and enter BIH late in pregnancy, but results did not support this hypothesis. Also it was hypothesized that cigarette, alcohol and drug users were more likely to initiate prenatal care and enter BIH late in pregnancy, but again, no statistically significant associations were found.

Infant Birthweights for Study Population

A total of 1,623 live births were included in this study. Figure 13 shows the birthweight distribution. Of those, 1,443 (88.9%) had a birthweight of 2,500 or more grams and 180 (11.1%) had a birthweight of less than 2,500 grams.

Figure 13. Birthweight Distribution of Study Population (N=1623)



In summary, the descriptive analysis shows that the study population represented approximately half of the BIH participants statewide during the study period. The study population (N=1623) ranged in age from 13 to 46 years, with a mean age of 24. Eighty percent of the women were single, 78.3% were unemployed, 43.3% had not completed high school and 45.7% reported AFDC as their primary income source. Smoking during pregnancy was reported by or suspected in 19.3% of the cases, alcohol consumption was reported by or suspected in 11.3% and drug use was reported by or suspected in 12.6%. Few women (3.6%) reported having no social support and just over a third of the women (35.6%) reported having one to two sources. Support from the father of the baby was reported by 46.5% and support from the client's mother was reported by 51.3%.

A significant number of women were primiparous. Previous poor pregnancy outcomes such as abruptio placenta, low birthweight, intrauterine fetal demise, neonatal death, placenta previa, preterm labor and delivery were reported in 14.5% of the cases. Previous pregnancy health complications were also reported by 14.5%. This included history of anemia, pregnancy-induced hypertension, pyelonephritis and urinary tract infections.

The BIH Screening Instrument data revealed that more than a third (39.2%) of the women in the study were at moderate risk, that prenatal care was obtained late by 17.4%, that the most common health complication during the current pregnancy was anemia (15.3%) and that 12.3% had a preterm delivery. A significant percentage of women (53.3%) entered BIH late in their pregnancy

and therefore participated in the program for only a short period of time prior to delivery.

Of the 1623 live births included in the study, 1,443 (88.9%) women delivered infants of normal birthweight ($\geq 2,500$ grams), 180 (11.1%) delivered low birthweight infants ($<2,500$ grams) and in one case the birthweight was unknown. The birthweights among the study population ranged from 680 grams to 5,103 grams, with a mean birthweight of 3,142 grams, a median birthweight of 3,175 grams and a mode of 3,175 grams. On a positive note, the study population had a significantly lower LBW percentage than the LBW percentage reported for California in 1997 (12.1%), the latest year for which this statistic is available.

Results by Research Question

Research Question #1: *What is the association between sociodemographic and behavioral characteristics and low birthweight outcomes of BIH participants?*

Tables 14, 15 and 16 present the univariate association between sociodemographic and behavioral characteristics, social support network, and low birthweight outcomes of BIH participants. For each table a brief description of the results is presented.

Table 14

Birthweight by Sociodemographic Characteristics

Age Group	Birthweight			p Value
	N	LBW %	NBW %	
Age Group				
< 18 years old	158	12.0	88.0	0.1747
18-24 years old	846	10.3	89.7	
25-29	292	11.3	88.7	
30-34	162	11.1	88.9	
≥ 35	127	14.2	85.9	
Total	1585	11.0	89.0	
Marital Status				
Married	204	14.2	85.8	0.288
Single	1299	10.7	89.3	
Div/wid/sep	66	9.1	90.9	
Total	1569	11.1	88.9	
Employment Status				
Not Employed	1271	11.5	88.5	0.214
Part-time	159	7.5	92.5	
Full-time	99	14.1	85.9	
Total	1529	11.2	88.9	
Education				
<High School	702	12.3	87.7	0.498
High School Graduate	513	10.5	89.5	
Vocational	37	10.8	89.2	
Any College	298	9.1	90.9	
Total	1550	11.0	89.0	
Income Source				
Employment	226	10.6	89.4	0.915
Unemployment Ins.	162	13.6	86.4	
Partner	50	10.0	90.0	
AFDC	742	10.8	89.2	
Other	309	11.3	88.7	
None	68	13.2	86.8	
Total	1557	11.2	88.8	

No statistically significant associations were found between birthweight and age, marital status, employment status, education or income source of the study population.

Table 15

Birthweight by Social Support Network

Variable	N	Birthweight		p Value
		LBW %	NBW %	
Size of Social Network				
None	59	13.6	86.4	0.151
1-2 People in Network	578	9.9	90.1	
3-4 People in Network	444	13.7	86.3	
> 4 People in Network	348	9.5	90.5	
Total	1429	11.1	88.9	
Father of Baby Included in Social Network				
No	869	10.7	89.3	0.592
Yes	754	11.5	88.5	
Total	1623	11.1	88.9	
Client's Mother Included in Social Network				
No	790	10.5	89.5	0.465
Yes	833	11.6	88.4	
Total	1623	11.1	88.9	

No statistically significant association was found between birthweight and size of social network. Furthermore, no statistically significant associations were

found between birthweight and having the father of the baby or the woman's mother as part of her social network.

Table 16

Birthweight by Behavioral Characteristics

Variable	Birthweight		p Value	
	N	LBW %		NBW %
Cigarette Use				
No	1211	10.2	89.8	0.003
Quit First or Second Trimester	119	10.9	89.1	
Smoked or Suspected	195	18.5	81.5	
Total	1525	11.3	88.7	
Alcohol Use				
No	1333	10.6	89.4	0.046
Quit First or Second Trimester	122	14.8	85.2	
Smoked or Suspected	62	19.4	80.6	
Total	1517	11.3	88.7	
Drug Use				
No	1258	10.7	89.3	0.036
Yes or Suspected	204	15.7	84.3	
Total	1462	11.4	88.6	

A statistically significant association was found between birthweight and cigarette use ($p=0.003$), birthweight and alcohol use ($p=0.046$) and between birthweight and drug use ($p=0.036$).

Research Question #2: What is the association between reproductive history and perinatal factors and low birthweight outcomes of BIH participants?

Tables 17 through 22 present the univariate association between reproductive history and perinatal factors and low birthweight outcomes of BIH participants.

Table 17

Birthweight by Reproductive History

Variable	N	Birthweight		p Value
		LBW %	NBW %	
Number of Previous Pregnancies				
No Previous Births	658	11.7	88.3	0.803
One Previous Birth	373	10.5	89.5	
Two or More Previous Births	572	10.8	89.2	
Total	1603	11.1	88.9	
Previous Poor Pregnancy Outcomes				
No	1387	10.2	89.8	0.008
Yes	236	16.1	83.9	
Total	1623	11.1	88.9	
Health Complications of Previous Pregnancies				
No	1387	11.0	89.0	0.682
Yes	236	11.9	88.1	
Total	1623	11.1	88.9	

No statistically significant association was found between birthweight and the number of previous births. Previous poor pregnancy outcomes such as abruptio placenta, low birthweight, intrauterine fetal demise, neonatal death, placenta previa, preterm labor and preterm delivery were found to be statistically associated with birthweight ($p=0.008$). No statistically significant association was found between birthweight and a history of anemia, gestational diabetes, pregnancy-induced hypertension, pyelonephritis and urinary tract infections.

Table 18

Birthweight by Risk

Risk Score	Birthweight			p Value
	N	LBW %	NBW %	
Low (<12)	611	10.5	89.5	0.633
Moderate (13-16)	637	11.3	88.7	
High (>than 16)	327	12.5	87.5	
Total	1575	11.2	88.8	

No statistically significant association was found between birthweight and risk status as determined by the BIH Screening Instrument.

Table 19

Birthweight by Trimester of Prenatal Care Initiation

Prenatal Care Initiation	Birthweight			p Value
	N	LBW %	NBW %	
First Trimester	733	9.3	90.7	0.132
Second Trimester	432	13.0	87.0	
Third Trimester	282	9.0	90.1	
Total	1447	10.5	89.5	

No statistically significant association was found between birthweight and trimester of prenatal care initiation.

Table 20

Birthweight and Current Pregnancy Health Problems

Variable	Birthweight			p Value
	N	LBW %	NBW %	
No	1252	11.3	88.7	0.686
Yes	371	10.5	89.5	
Total	1623	11.1	88.9	

No statistically significant association was found between birthweight and current pregnancy health complications such as anemia, gestational diabetes, pregnancy-induced hypertension, pyelonephritis and urinary tract infections. Table 21 presents an interesting comparison between birthweight, previous poor pregnancy outcomes and current pregnancy health problems. A previous poor pregnancy outcome is thought to be related to complications in pregnancy. In the study population, however, current pregnancy health complications were not associated with birthweight outcomes. It could be hypothesized that BIH participants obtained better management of their medical problems during pregnancy as a result of more effective referrals, greater compliance with prenatal care and medical advice.

Table 21

Birthweight, Previous Poor Pregnancy Outcomes and Current Pregnancy Health Problems

Variable	N	Birthweight		p Value
		LBW %	NBW %	
Previous Poor Pregnancy Outcomes				
No	1387	10.2	89.8	0.008
Yes	236	16.1	83.9	
Total	1623	11.1	88.9	
Current Pregnancy Health Problems				
No	1252	11.3	88.7	0.686
Yes	371	10.5	89.5	
Total	1623	11.1	88.9	

Table 22 displays the results of the univariate analysis of birthweight by gestational age. It has been well documented that gestational age is a strong predictor of low birthweight. Consistent with previous research, a statistically significant association ($p=0.00$) was found in this study between birthweight and gestational age. Nearly 44% of the BIH participants who delivered before 37 weeks gestation had a low birthweight outcome and 93.6% of the women who carried their pregnancies to full term (37 or more weeks gestation) had a normal birthweight outcome.

Table 22

Birthweight and Gestational Age

Variable	N	Birthweight		p Value
		LBW %	NBW %	
< 37 weeks	181	43.6	56.4	0.000
≥ 37 weeks	1292	6.4	93.6	
Total	1473	11.0	89.0	

Research Question #3: *What is the association between the length of participation in BIH and low birthweight outcomes of BIH participants?*

BIH Service Delivery Variables. Tables 23 and 24 present the univariate association between trimester of BIH entry and BIH length of participation and low birthweight outcomes of BIH participants. A statistically significant association was found between birthweight and pregnancy trimester of BIH entry but no statistically significant association was found between birthweight and length of participation in BIH.

Table 23

Birthweight by Trimester of BIH Entry

BIH Entry	Birthweight			p Value
	N	LBW %	NBW %	
First Trimester	176	14.8	85.2	0.006
Second Trimester	503	13.1	86.9	
Third Trimester	865	8.6	91.4	
Total	1544	10.8	89.2	

Table 24

Birthweight by Length of Participation in BIH

Length of BIH Participation	Birthweight			p Value
	N	LBW %	NBW %	
<12 weeks	704	10.9	89.1	0.850
13 to 23 weeks	575	11.5	88.5	
24 to 44 weeks	341	10.3	89.7	
Total	1620	11.0	89.0	

The initial goal of this study was to assess BIH participation using date of entry into BIH, EDC, length of participation in the program and number of direct and indirect contacts. The variables used to assess BIH service delivery were found to be inconsistent and, in many cases, unavailable. Contacts were to be used to measure intensity of services. Unfortunately, quality assurance procedures uncovered several problems with data collection regarding BIH contacts. As discussed earlier, length of participation in BIH showed no statistical association with birthweight, while late entry into BIH seemed to have a protective effect; a statistical significance was observed but going in the direction opposite to what was expected. No clear explanation is available for this finding. It could be hypothesized that a number of women who entered BIH late had normal birthweight outcomes because they were healthy before coming into the program. More extensive research is needed to identify and determine what attributes contributed to positive outcomes in spite of late participation in BIH.

Summary of Univariate Analysis. Table 25 presents a summary of the univariate analysis illustrated in previous tables: sociodemographic and behavioral characteristics, reproductive history and perinatal factors and BIH participation and birthweight outcomes of BIH participants. Statistically significant univariate associations were found between birthweight and six variables: 1) cigarette use, 2) alcohol consumption, 3) illicit drug use, 4) previous poor pregnancy outcomes, 5) gestational age and 6) pregnancy trimester of BIH entry.

No statistically significant univariate associations were found between birthweight and fourteen variables: 1) age, 2) marital status, 3) employment status, 4) education, 5) income source, 6) size of social network, 7) father of the baby in social network, 8) client's mother in social network, 9) previous number of births, 10) previous pregnancy health complications, 11) risk status according to the BIH Screening Instrument, 12) pregnancy trimester of prenatal care initiation, 13) health complications in current pregnancy, and 14) length of participation in BIH. Further discussion of the findings and their implications is found in Chapter V.

Table 25

Summary of Association Between Birthweight and Study Variables

Variable	Association with BW	P Value
Age	NS	0.1747
Marital Status	NS	0.288
Employment Status	NS	0.214
Education	NS	0.498
Income Source	NS	0.915
Size of Social Network	NS	0.151
Father of Baby Included in Social Network	NS	0.592
Client's Mother Included in Social Network	NS	0.465
Cigarette Use	S	0.003
Alcohol Use	S	0.046
Drug Use	S	0.036
Number of Previous Births	S	0.803
Previous Poor Pregnancy Outcomes	S	0.008
Health Complications of Previous Pregs.	NS	0.682
Risk Score	NS	0.633
Trimester of PNC Initiation	NS	0.132
Current Pregnancy Health Complications	NS	0.686
Gestational Age	S	0.000
Trimester of BIH Entry	S	0.006
Length of Participation in BIH	NS	0.850

Research Question #4: *Can a predictive model for LBW be developed using BIH length of participation, controlling for sociodemographic and behavioral characteristics and perinatal factors?*

Model-building strategies proposed by Hosmer and Lemeshow (1989, pp. 82-91) were used to address research question #4. As discussed in Chapter III, several steps were required in the development of the predictive model.

First, a univariate analysis of each variable was used in the model building. Table 26 presents the odds ratio and 95% confidence interval of the variables used in this study.

As required by logistic regression, a dummy-variable or indicator-variable coding was used, recoding each variable as 0 or 1. The code of 1 indicated that a poorer outcome was present and 0 indicated that it was not. In the case of variables with more than two categories, it was necessary to create new variables to represent the categories.

Interpretations revealed the differences between the log of odds when a case was a member of the predictive category and when it was not. Table 26 shows the recoding and univariate odds ratio and 95% confidence intervals of all nineteen variables in relation to low birthweight. Seven variables in this table showed a univariate association with a p-value of <0.25. These variables were marital status, education, cigarette/alcohol/drug use, previous poor pregnancy outcomes and gestational age. The comparison between early and late trimesters of entry into BIH was also significant but as mentioned earlier, this variable was not included in the model. Cigarette, alcohol and drug use data

elements were entered as a combined variable and education was excluded because of its high correlation with age. Current pregnancy complications, size of social network and risk scores were considered for inclusion in the model only to study the relationship of these variables to low birthweight.

The relationship between gestational age and low birthweight has been well documented. Consistent with previous research, this study found that a pregnancy with a gestational age of less than 37 weeks was 11.3 times more likely to result in a low birthweight outcome. Based on this well-known fact, the researcher considered it unnecessary to add the variable to the model, and chose to focus on the study of other potential predictive variables. In addition, service delivery variables, initially proposed, were excluded due to the lack of confidence in these data elements. The predictive models used only sociodemographic, behavioral, reproductive and perinatal variables.

Table 26

Odds of Low Birthweight for Study Variables: Univariate Analysis (N=1623)

Variable/Comparison	Odds Ratio	95% Confidence Intervals	P Value
Age Adolescent (<18)/Adult (≥ 18)	1.114	0.670 - 1.850	0.677
Marital Status Single/Married	0.717	0.467 - 1.101	0.127
Employment Status Not Employed/Employed	1.158	0.745 - 1.799	0.514
Education <HS/≥HS	1.253	0.912 - 1.722	0.164
Income Source AFDC/Other	0.916	0.668 - 1.256	0.585
Size of Social Network None/One or Two	1.434	0.648 - 3.172	0.371
None/≥ Three	0.844	0.604 - 1.189	0.320
Baby's Father Included in Social Network No/Yes	0.919	0.674 - 1.253	0.592
Cigarette Use Yes or Suspected/No	1.636	1.144 - 2.338	0.007
Alcohol Use Yes or Suspected/No	1.647	1.073 - 2.527	0.021
Drug Use Yes or Suspected/No	1.561	1.028 - 2.370	0.036
Number of Previous Births None/One or More	1.107	0.808 - 1.517	0.525

Previous Poor Pregnancy Outcomes			
Yes/No	1.683	1.141 - 2.481	0.008
Health Complications in Previous Pregnancies			
Yes/No	1.094	0.712 - 1.680	0.682
Screening Score			
Moderate Risk/Low Risk	1.089	0.762 - 1.556	0.633
High Risk/Low Risk	1.255	0.807 - 1.860	0.339
Trimester of PNC Initiation			
Second/First	1.440	0.982 - 2.111	0.621
Third/First	0.983	0.606 - 1.595	0.946
Current Pregnancy Health Complications			
Yes/No	0.926	0.636 - 1.347	0.686
Gestational Age			
<37 Weeks/≥ 37 Weeks	11.282	7.805 - 16.307	0.000
Trimester of BIH Entry			
Second/First	0.884	0.536 - 1.457	0.627
Third/First	0.525	0.322 - 0.856	0.009
Length of BIH Participation			
0-12 /24 Weeks or More	1.074	0.704 - 1.638	0.741
13-23/24 Weeks or More	1.134	0.735 - 1.749	0.571

Second, given that model building using logistic regression is sensitive to collinearities among the independent variables included in the model, an assessment of independent variable collinearities was conducted using the correlation program in SPSS for Windows. Pearson correlation coefficient >0.25 was considered a measure of high linear association among the variables and only one of the variables was considered for inclusion in the model. Table 27

illustrates the correlation between independent variables #1 and #2. Due to high correlation with one another, variables with Pearson correlation coefficient >0.25 were excluded from the model building. These variables were: income, education, father of the baby in social network and client's mother in social network. The variables kept for inclusion in the model building were those most traditionally used by previous researchers as potential predictors of LBW. Since cigarette, alcohol and drug use during pregnancy was found to be strongly correlated, they were recoded and used in the model as a single combined variable.

Table 27

Correlation of Independent Variables

Variable #1	Variable #2	Pearson Correlation Coefficient	Variable Included in Model
Age	Education	0.348	Age
Drug Use	Alcohol Use	0.351	Combined Variable
Cigarette Use	Alcohol Use	0.362	Combined Variable
Cigarette Use	Drug Use	0.305	Combined Variable
Employment	Education	0.250	Employment
Income	Employment	0.357	Employment
Size of Social Network	Father in Network	0.397	Size of Social Network
Size of Social Network	Mother in Network	0.484	Size of Social Network

Third, an analysis of interaction terms was conducted using the corresponding SPSS for Windows program. Sixteen pairs of terms were analyzed for interaction levels. These pairs were selected randomly as possible pairs for interaction. No statistically significant first-order interaction terms were found; therefore, none were used in the models. The sixteen pairs of term analyzed for interaction levels were:

- age and marital status
- age and employment
- age and size of social network
- age and cigarette/alcohol/drug use in pregnancy
- age and previous poor pregnancy outcomes
- age and risk score
- employment and marital status
- employment and size of social network
- employment and risk score
- marital status and risk score
- size of social network and risk score
- cigarette/alcohol/drug use and size of social network.
- current pregnancy health complications and previous poor pregnancy outcomes
- current health complications and cigarette/alcohol/drug use
- previous poor pregnancy outcomes and size of social network

Fourth, to determine the predictors of LBW outcomes, a forward stepwise logistic regression procedure was conducted using all variables that showed univariate statistical significance. At each step, the variable with the smallest significance level for the score statistic was entered into the model. A $p < 0.25$ was used as criteria for entry and a $p > 0.30$ was used as a criteria for removal. The likelihood ratio (LR) was used to determine variables to be removed from the model. This was done by estimating the model with each variable eliminated in

turn and looking at the change in the log of likelihood when each variable was deleted.

Table 28 shows the results of the multivariate analysis using logistic regression techniques and a forward stepwise procedure.

Table 28

Sociodemographic and Behavioral Characteristics, Reproductive History and Perinatal Factors as Predictors of Low Birthweight (N=1281)
Multivariate Analysis. Method: Forward Stepwise. Likelihood-ratio statistic used to remove variables.

Variable Comparison/Reference	B	SE	OR	95% CI	P Value
**Previous Poor Pregnancy Outcomes Yes/No	0.4413	0.2158	1.5547	1.0184 - 2.3733	0.0472
**Cigarette/Alcohol/ Drug Use	0.3749	0.1159	1.4548	1.0220 - 2.0708	0.0398

Entry criteria: $p < 0.25$, exclusion criteria: $p > 0.30$.

Variables not included in the model: age, employment status, risk score, marital status, current pregnancy health complications and size of social network.

****** Variables showing statistical significance: $p < 0.05$.

Furthermore, the method forcing entry of all variables considered for inclusion in the model is useful both for showing the predictor variables for low birthweight and for studying relationships. Table 29 shows the results using this method. Adjusting for other variables, this model shows that adolescents are 1.3 times more likely than adult women to deliver an LBW infant, while women identified at high risk by the BIH screening instrument are 1.2 times more likely to

have an LBW outcome than those identified at low risk. The model used forcing all variables shows that the strongest predictor for low birthweight is a history of previous poor pregnancy outcomes (abruptio placenta, low birthweight, intrauterine fetal demise, neonatal death, placenta previa, preterm labor or preterm delivery). The odds of having a low birthweight baby are 1.6 times greater for a woman with a history of any previous poor pregnancy outcomes. The next strongest predictor of low birthweight was cigarette, alcohol or drug use. The odds of having a low birthweight baby are 1.5 times greater for those who smoke, drink alcohol or use illicit drugs during pregnancy. When the forward stepwise method is used, the model shows the same variables as strong predictors of low birthweight, with a slight but insignificant difference in the odds ratios.

Although the results using forward stepwise and forced entry techniques showed not good predictive models of low birthweight, they both serve to illustrate relationships. It is possible that these models did not predict LBW because key variables such as service delivery were not included – a significant limitation of this study.

Finally, in order to assess whether or not the models fit the data, the Hosmer-Lemeshow goodness-of-fit statistic was used to determine how well the logistic models performed. The Hosmer-Lemeshow goodness-of-fit statistic for the model using the forward stepwise method and likelihood ratio statistic to remove variables had a Chi-square=2.61 and a p=0.27, showing a good fit of the

model with the data. The model using the forced entry method had a Chi-square=6.90 and a $p=0.55$, also indicating a good fit of the model with the data.

Table 29

Sociodemographic and Behavioral Characteristics, Reproductive History and Perinatal Factors as Predictors of Low Birthweight (N=1281)
Multivariate Analysis. Method: Forced Entry

Variable Comparison/Reference	B	SE	OR	95% CI	p Value
Age					
Adolescent/Adult	0.2909	0.2800	1.3377	0.7727 - 2.3159	0.2988
Employment Status					
Unemployed/Employed	0.384	0.2437	1.0391	0.6445 - 1.6754	0.8749
Marital Status					
Single/Married	- 0.2593	0.2506	0.7716	0.4721 -1.2611	0.3009
Risk Score					
Low/Moderate	-0.0051	0.2026	0.9949	0.6689 - 1.4798	0.9798
Low/High	0.1874	0.2381	1.2062	0.7564 - 1.9234	0.4311
Current Pregnancy Health Problems					
Yes/No	-0.1654	0.2095	0.8476	0.5622 - 1.2779	0.4298
Size of Social Network					
None/One or Two	-0.1514	0.1884	0.8595	0.3725 - 1.9833	0.7227
None/Three or More	-0.2488	0.4266	0.7797	0.5390 - 1.1279	0.1865
**Previous Poor Pregnancy Outcomes					
Yes/No	0.4503	0.2199	1.5687	1.0195 - 2.4138	0.0406
**Cigarette/Alcohol/ Drug Use					
	0.3777	0.1853	1.4589	1.0147 - 2.0975	0.0415

Entry criteria: $p < 0.25$, exclusion criteria: $p > 0.30$.

** Variables showing statistical significance: $p < 0.05$

Summary

In summary, results by research questions revealed:

- no association between sociodemographic characteristics (age, marital status, education, employment status and income source) and low birthweight outcomes of BIH participants;
- no association between social network size, baby's father or client's mother included in social network) and low birthweight outcomes of BIH participants;
- no association between number of previous pregnancies, health complications of previous pregnancies, current pregnancy health complications and low birthweight of BIH participants;
- no association between level of risk (measured by Screening Instrument) and low birthweight outcomes;
- no association between initiation of prenatal care by trimester of pregnancy and low birthweight outcomes;
- a statistically significant association between low birthweight outcomes of BIH participants and behavioral characteristics (cigarette, alcohol and drug use in pregnancy);
- a statistically significant association between previous poor pregnancy outcomes and low birthweight outcomes;
- as expected, a statistically significant association between gestational age and low birthweight outcomes;

- a statistically significant association between trimester of entry into BIH (in the direction opposite to that expected) and no association between length of participation in BIH and low birthweight outcomes. This, as discussed earlier, is perhaps the result of problems encountered with data used to measure program participation and service delivery;
- strong predictors of low birthweight in the BIH population were gestational age, previous poor pregnancy outcomes and cigarette, alcohol and drug use in pregnancy.

This concludes the presentation of results. Chapter V offers a detailed discussion of these findings, including implications for future research, program planning, policy making and leadership. Finally, study limitations are discussed and recommendations are offered.

CHAPTER V

DISCUSSION, IMPLICATIONS, LIMITATIONS, RECOMMENDATIONS

Current literature consistently indicates that multiple factors influence pregnancy outcomes, child survival and health status. African-American infant mortality is a complex issue which is thought to be influenced by social, economic, environmental, cultural, political and historical factors. To date, African-American infant mortality research has concentrated almost exclusively on between-race comparisons rather than on the intragroup variability within that community, leading to the erroneous conclusion that race alone explains infant mortality levels. Such an approach hinders the development of culturally appropriate programs designed to address the problem of high African-American infant mortality.

This study attempted to further the investigation of intragroup variability and analyze the impact of more culturally appropriate interventions such as those offered by the California Black Infant Health Program.

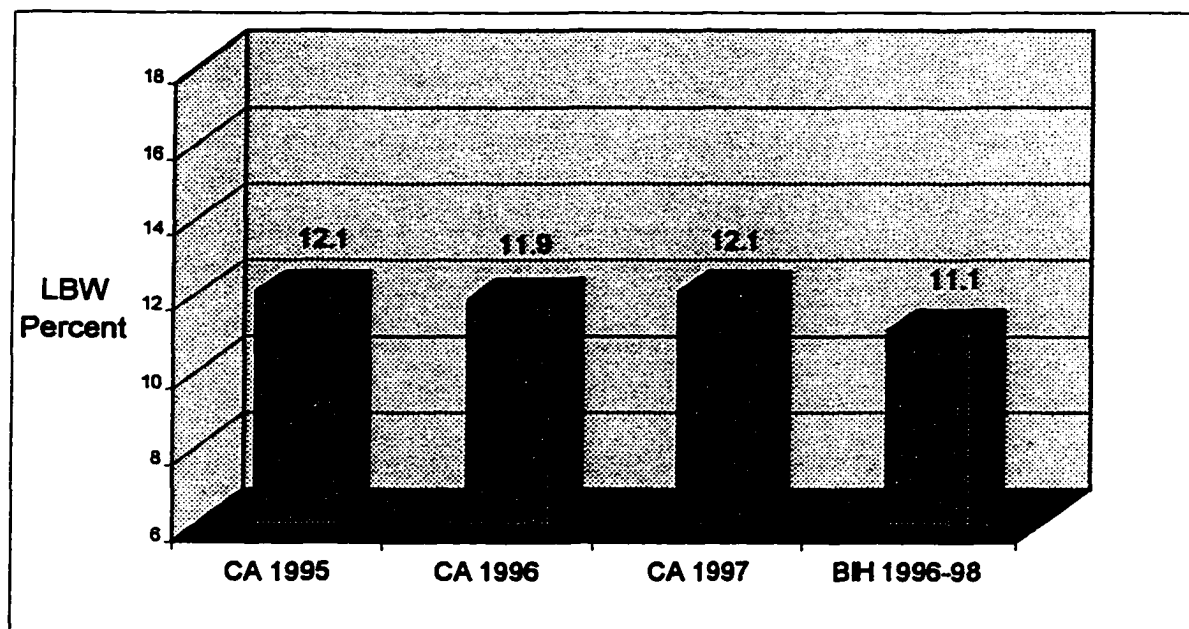
Discussion

The total number of women included in this study (1623) represented 50% of BIH Program clients statewide between July 1, 1996 and June 30, 1998 and who delivered a singleton live birth during that time. BIH Program clients participated in two intervention models. All took part in the Outreach and Tracking intervention and as the second model eight sites offered Social Support and Empowerment, five sites offered Case Management and one site offered Health Behavior Modification. The models chosen, discussed in Chapter I, incorporated much of what Willis (1998) proposed for delivering more culturally relevant interventions to African-Americans. BIH study participants represented fourteen health jurisdictions; San Francisco and Alameda were not included because data collected by the two sites was incomplete and of poor quality.

Birthweight Outcomes of Study Population

A total of 1443 (88.9%) study cases had normal birthweight outcomes and 180 cases (11.1%) had low birthweight outcomes. Figure 14 compares California low birthweight percentages for 1995, 1996 and 1997 (the latest years for which data is available) with the birthweight outcomes of BIH participants between July 1, 1996 and June 30, 1998. Although California experienced a rise statewide in the LBW figure between 1996 and 1997, it is exciting and very promising that the BIH population reported a lower LBW percentage during the two-year study period.

Figure 14. California African-American Low Birthweight (1995, 1996, 1997) and BIH Low Birthweight Percentages (1996-1998)



Source: State of California, Department of Health Services
Maternal and Child Health Branch, Office of Program Data and Evaluation
Epidemiology and Evaluation Section, Vital Statistics File (10/98)

Sociodemographic Characteristics of BIH Participants

Study results were both similar to and different from those reported in the literature. In general, this study population's sociodemographic characteristics were associated with low birthweight, especially when compared with studies of white women. The group studied commonly fell into a number of the following categories: single, low education, low income, unemployed and welfare recipient.

The age range of women in the study sample ranged from 13 to 46 years, with a mean age of 24. This is easily explained by the fact that the BIH target population is adult African-American women. Adolescents are referred to more age-appropriate

programs available statewide. However, a small number of adolescents were found in this sample, primarily due to the lack of more suitable programs in certain geographical areas or the desire of the adolescent to participate in BIH rather than in programs targeted to adolescents. The majority of women were 18 to 24 years old (52.1%), representing overall a young adult population. Although no statistical significance was found between age and birthweight, the multivariate analysis using logistic regression techniques showed that adolescents were 1.3 times more likely to have an LBW outcome than adults.

BIH clients were found to be high risk in relation to sociodemographic factors. Most women were single (80%), a significant number were unemployed (78.3%), 9.8% worked part-time and only 6.1% had a full-time job. Consistent with the employment data, the most common source of income was governmental assistance (AFDC). Also consistent with the data on marital status, only 3.1% reported a partner as their source of income. A large number of the women in the sample had not completed high school (43.3%) and only 18.4% had received some college education.

As discussed in Chapter II, previous research consistently associates socioeconomic factors such as age, marital status, education, income and employment with poor pregnancy outcomes. For example, it is known that teenage childbearing is associated with a number of undesirable outcomes for both mother and child (Givens & Moore, 1995). Teenagers are also more likely to receive prenatal care late or not at all. Poverty, which influences maternal and child health in many ways, has been stated to be at the root of most poor infant outcomes (Givens & Moore, 1995).

Educational and income patterns (Singh & Yu, 1996) have also been shown to be inversely related to infant mortality rates. Lieberman et al., (1997) documented that

single women younger than 20 who did not graduate from high school and who were receiving welfare were strong candidates for poor pregnancy outcomes. In the case of teenagers some clustering of these variables occur because young women are less likely to have finished school, or more likely to be single.

The findings of this study, however, were more consistent with the literature findings that although these associations have been clearly demonstrated for whites, it is not the case for blacks. (Geronimus & Korenman, 1993; Givens & Moore, 1995; Singh & Yu, 1996). The results of the study support the literature findings that age for African-American women is not a significant factor associated with low birthweight. No significant associations between education, marital status, income or employment status and birthweight among BIH participants were found. This supports the argument that among socioeconomically disadvantaged mothers, the risk of poor outcomes does not decrease or increase because of age (Geronimus & Korenman, 1992) or other sociodemographic factors.

Social Network Size of BIH Population

Collins, Dunkel-Schetter, Lobel and Scrimshaw (1993) reported positive associations between birthweight and social networks. The authors studied this topic by researching the amount and quality of social support received plus network resources. Their study findings revealed that greater social support was associated with better labor progress; higher infant's Apgar scores and less postpartum depression while larger social networks were associated with higher birthweight. Norbeck & Anderson (1989) studied specific networks and psychosocial predictors of pregnancy outcomes in African-American women as well as Hispanic and white women; their

results demonstrated that key sources of social support were important in pregnancy outcomes for African-American women, and that there was no substitute for the support of the partner or mother.

In this study attempts were made to identify the size of the client's network as well as whether the baby's father and the client's mother were part of the client's social network. Results showed that most women (48.8%) reported a social network consisting of three or more people, while 35.6% reported one or two people as sources of social support and 3.6% reported none. Consistent with the high number of single women in the study, fewer than half (46.5%) identified the father of the baby in their social network. A slightly higher number (51.3%) identified their mother as part of their social network.

Contrary to some findings in the literature, no associations were found between social network size, presence of the baby's father or client's mother and birth outcomes of the BIH participants. Of most interest are the results that a slightly higher number of women who had normal birthweight outcomes reported not having the baby's father or their mother in their social network. A slightly higher percentage of women reporting one or two or more than four people in their social network had normal birth outcomes. None of these findings was statistically significant.

Assessment of social network is not a simple task. In this study, the evaluation of social support was limited to analysis of size and whether the baby's father or client's mother was part of the network system of the pregnant woman, perhaps not the best measures to use when assessing the influence of social support on pregnancy outcomes. Unfortunately, the data did not lend itself to studying the quality of relationships, the level of influence and the intensity of social support, measures that

may be more appropriate when analyzing the association between social support and pregnancy outcomes.

Behavioral Characteristics of BIH Population

In relation to behavioral characteristics associated with substance use, the study found that 19.3% of the women reported smoking at some point during their pregnancy. Almost one-third of the 19.3% reported quitting during the first or second trimester of pregnancy. Smoking throughout the pregnancy or use denied but suspected by the BIH provider was reported for 12.0% of the participants. Alcohol use was reported in 11.3% of the cases, and 7.5% of those cases reported quitting during the first or second trimester of pregnancy. The other third (3.8%) reported drinking throughout the pregnancy or denied drinking but the BIH provider suspected it. Illicit drug use was reported or suspected in 12.6% of the cases. No assessment was done of cases reporting cessation of drug use during pregnancy. Missing data on these variables ranged from 6.0% in the case of smoking to 9.9% in the case of illicit drug use, a statistic easily explained by the sensitivity of the information collected and the social ramifications of reporting alcohol or drug use during pregnancy.

Of interest were the findings relative to substance use and age in the study group. It was assumed that adolescents would report high rates of cigarette, alcohol and drug use. However, contrary to what was expected, more adult women than teenagers were likely to report cigarette or alcohol use ($p=0.001$ and $p=0.015$ respectively) and no difference was seen in the reporting of drug use by the two age groups ($p=1.000$).

Consistent with most of the literature and as was expected, a statistically significant association was found between cigarette/alcohol/drug use and birthweight. In addition, correlation analysis showed that women who smoked were also more likely to drink alcohol and use illicit drugs during pregnancy. The univariate analysis of these variables was consistent with the findings of the multivariate analysis using logistic regression techniques showing cigarette, alcohol and drug use as a combined variable to be a strong predictor of low birthweight.

Why the African-American women in this study used cigarettes, alcohol and drugs during pregnancy is worth exploring. Can the socially disadvantaged status of these women and the associated high level of stress in their lives influence their choices of poor behaviors such as those mentioned? More research in this area is necessary.

The Health Behavior Modification model was designed to assist clients in altering their behavior while increasing their self-esteem and learning positive behavioral skills. However, this model was implemented in only one health jurisdiction. Program implications of findings related to this implementation are discussed later in this chapter.

Reproductive History and Perinatal Factors

The association between gestational age and birthweight is unquestionable. There are several paths to low birthweight, with prematurity being the most significant of it (Givens & Moore, 1995). The combined presence of a number of economic, demographic and behavioral factors have been shown to predict prematurity as well (Lieberman et al., 1987). Consistent with previous research, shorter gestational age

was strongly associated with low birthweight in the BIH population. BIH clients with a gestational age of less than 37 weeks were 11.3 times more likely to have a low birthweight outcome. To no one's surprise, in this study prematurity was found to be the most significant contributor to low birthweight. In the study sample, 43.6% of LBW outcomes had a gestational age of less than 37 weeks, while 93.6% of the NBW outcomes had a gestational age of 37 or more weeks.

Medical complications have been shown to be related to pregnancy. Petridou, et al. (1996) studied the ways in which several reproductive history variables and parity were associated with birthweight. Other studies have concentrated on the relation between medical complications and race, showing for example, that the significance of the association between low hematocrit (anemia) and poor pregnancy outcomes in the black population (Lieberman, et al., 1987) is primarily due to its contribution to prematurity.

In this study no significant associations were found between birthweight and parity or birthweight and medical complications of previous or current pregnancies such as: anemia, gestational diabetes, pregnancy-induced hypertension, pyelonephritis and urinary tract infection. The BIH study results support Alexander & Korenbrot's (1995) arguments that specific medical conditions may be significant at the individual level, but they impact relatively few pregnant women and contribute little to overall low birthweight rates. On the other hand, this study did find a statistically significant association between birthweight and poor pregnancy outcomes such as abruptio placenta, low birthweight, intrauterine fetal demise, neonatal death, placenta previa, preterm labor and delivery. The multivariate analysis showed previous poor pregnancy

outcomes as a predictor of LBW in the BIH population, results consistent with the univariate analysis results.

The benefits of prenatal care have been well documented (Alexander & Korenbrot, 1995) and early prenatal care is thought to be more effective in improving pregnancy outcomes. However, in this study, the time of prenatal care initiation was not associated with birth outcome, supporting the latest findings that the time of entry may be only one important factor; the adequacy of prenatal care utilization (Kotelchuck, 1994) is also very important. One limitation of this study was the lack of data necessary to assess quality of prenatal care: the number, frequency and content of prenatal care visits, as well as when they occurred. In order to more effectively discuss prenatal program implications, a comprehensive set of measures such as those proposed by Kotelchuck must be used in assessing prenatal care utilization.

Risk Score and BIH Service Delivery

The BIH Screening Instrument served to identify women who could most benefit from participation in the BIH Program. Risk status of the BIH participants assessed by using this tool revealed that 10.5% of the LBW cases were assessed at low risk, 11.3% at moderate risk and 12.5% at high risk. These results show some association between risk level and risk of low birthweight, but no statistical significance was found. The results are consistent with the findings of the multivariate analysis, that women with high-risk scores were 1.2 times more likely to have an LBW outcome than women with low-risk scores. The screening instrument, extensively validated by Dr. Barbara Wheeler from the University of Southern California, has been identified by the BIH

providers as a helpful and effective tool to determine eligibility for BIH participation by assessing psychosocial risk.

Pregnancy trimester of entry into BIH was found to be statistically significant. More than half of the BIH clients (53.3%) entered the program in the third trimester, 31.0% entered in the second trimester and only 10.8% entered in the first trimester. However, contrary to what was expected, the association suggests a beneficial impact of late entry into BIH as opposed to early entry. Furthermore, the length of participation in BIH was not found to be statistically significant in relation to birthweight. It is difficult to interpret these results. They may be due to lack of community awareness of the program's existence, outreach workers' inability to identify potential clients until they are visibly pregnant, or barriers to accessing BIH services: lack of motivation, lifestyle, behavioral characteristics or lack of trust in the health care system. Further study of these issues is necessary. The beneficial effect of late entry into BIH may be due to more intensive delivery services provided from the time of entry. Unfortunately, accurate data elements were not available in this study to evaluate service delivery and intensity of services provided.

The relation between birth outcome and trimester of BIH entry controlling for risk score and length of participation is presented in Table 40. Though it is recognized that many potential confounders may be influencing this analysis, it was undertaken in an attempt to gain some understanding of the study finding. On a positive note, women with NBW outcomes consistently participated in BIH longer than women with LBW outcomes, independent of risk scores and trimester of BIH entry. Again, lack of accurate service delivery and service intensity measures is a major study limitation that impaired proper assessment of the impact of BIH interventions.

In summary, univariate analysis and multivariate modeling using logistic regression techniques consistently found that prematurity, history of poor pregnancy outcomes and cigarette/alcohol/drug use during pregnancy were predictors of low birthweight in the BIH population.

Implications, Limitations, Recommendations

The high rate of infant mortality continues to be a significant public health problem in the United States and its primary contributor, low birthweight, is a complex and multifaceted issue that clearly springs from socioeconomic, political, racial, cultural and environmental roots. A better understanding of how these factors influence low birthweight is critical to its elimination. As Hughes & Simson (1995) state, the separation of health and social politics may have much to do with the severity of this problem. The authors maintain that implementation of more effective measures for reducing the disparity between black and white low birthweight rates requires that the definition of health be broadened to incorporate social dimensions, and that effective strategies must include preventive efforts at both the individual and community levels. To effectively address the problem of low birthweight in the African-American community, we must better understand the many program, policy and leadership implications that flow from current national policies.

Policy and Leadership Implications

Most health legislation passed in this country adds bits and pieces to an already fragmented system that responds poorly to the needs of all. This is clearly evidenced by the lack of an organized national system that guarantees basic care for the country's

entire population. Health care in this country is an economic privilege rather than a social guarantee. As the cost of medical care increases and resource availability decreases, this inequality is bound to become more pronounced. The imbalances are bound to worsen between high-cost medical technology for the few and preventive health care for all, between private insurance for the wealthy and a universal health care system.

More broadly, in addition to instituting a national health care system it is essential that we expand the concept of health care to include social dimensions. We must deal with the reality that an issue such as African-American infant mortality is not a medical problem but a problem rooted in socioeconomic disadvantages. Policies that integrate health and social strategies, like those implemented effectively in many European countries, are long overdue in the United States. Williams (1994) documents several examples: social programs to alleviate poverty and improve living conditions (free and accessible contraception, incentives for early prenatal care, transportation benefits, paid work leave to obtain care, housing benefits, paid maternity leave, special services for single mothers, paid child care, educational benefits, etc.), a health care delivery system offering services to all and prenatal health care models that emphasize social factors and are closely linked to social support.

Though the universal health care system the country needs has not yet been created, individual states are implementing projects that can alleviate some problems in the present while serving as models for the future. In California, to address the issue of disproportionately high African-American infant mortality, the Department of Health Services/Maternal and Health Branch made a financial commitment in 1993 to address adverse health outcomes for African-American mothers, infants and children. A

Request for Application (RFA) FY 1994-97 was issued for the purpose of soliciting proposals related to developing specific health interventions and providing services aimed at improving the overall health and well-being of African-American infants, women, families and communities. This RFA provided an opportunity to compete for funding available through the California Title V Maternal and Child Health Services Block Grant Proposal. Public and private non-profit agencies and community-based organizations were encouraged to apply (DHS, 1993, p. 2).

The resulting Black Infant Health Projects were mandated to implement intervention models that address the issues of Prevention, Outreach and Tracking, Case Management, Health Behavior Modification, Social Support/Empowerment and the Role of Men. The mission of the BIH projects was to do everything possible to improve the health and welfare of African-American mothers, infants and children. The goals of the BIH projects were 1) to reduce the underlying causes of pregnancy complications and risks for pregnancy and parenting for African-American women; and 2) to reduce the causes which contribute to high rates of African-American infant mortality and morbidity (DHS, 1993, p. 5).

During the past five years, as the need to address the issue of disproportionately high African-American infant mortality has become more recognized in the public health sphere, the BIH mission and goals have not changed significantly: the BIH promise to mothers and children of African-American families is still to provide equal access to health care and to recognize their right to be born healthy rather than at a disadvantage. The BIH Program's overall goal is to facilitate the process of identifying families at high risk for poor pregnancy/parenting outcomes and to help them obtain

required services while empowering them to fend for themselves in a constantly changing environment.

The BIH Program deals with issues of life and death. Few can doubt that the program's goals are worthwhile and need to be addressed by society. The BIH Program's goal for African-American mothers and children -- equal access to health care and acknowledgment of the right to be born healthy rather than at a disadvantage -- simply cannot be questioned.

BIH staff members have shown strong commitment and an ethical and moral understanding of what they are trying to accomplish. Most working for this cause are deeply committed to making a difference in the lives of the women and their babies. No one is looking for money or fame because there is neither of the two in this program. The large number of people connected with the project ensures a multiplicity of views, expertise, information and creativity when critical issues threaten the effectiveness of program activities, while the mixture of political, academic and community groups creates a diversity that can identify solutions. What at times seems weakness can be turned into strength.

The power to allocate resources and determine project services is in the hands of the state legislators and the California Department of Health decision-makers. Allocation of resources is heavily dependent on program evaluation results. The evaluation of the BIH projects must be used effectively to prove that the services provided are decreasing African-American rates of infant mortality, improving the health of African-American pregnant and parenting women and their families, preventing teenage pregnancy and increasing the involvement of fathers in the lives of their

infants. State legislators require valid data demonstrating the benefits of these kinds of projects in order to continue allocating resources for Black Infant Health services.

Since 1990 it is primarily funding that has impacted program resources. Initially the health jurisdictions received funding to provide services to the target population but were given little or no training by means of information and expertise; since 1993, however, they have been receiving assistance from the model developers as well as from the evaluation staff at San Diego State University. The volume of information and the level of expertise provided have increased since the funding of the model developers and the funding of the BIH Evaluation Project. Money/capital for the local projects as well as for the BIH Evaluation Project has increased annually. Supplemental money allocation amounts have varied yearly and have depended on the availability of other DHS program moneys not used by the close of each fiscal year. The BIH projects compete for resources with other Maternal and Child Health programs at the state and county levels, and in the current political climate regarding affirmative action policies this competition is becoming more acute. Categorical projects like BIH are projected to have a more difficult time obtaining future funding because of their specific ethnic focus.

Many programs funded by DHS attempt to meet the health needs of mothers and children. However, no program other than BIH specifically targets the African-American population. As long as the infant mortality rate for African-American babies continues to be two times that of Caucasian babies, programs targeting this specific population must remain in existence.

If those involved are to effectively advocate for the continuation of these kinds of projects, it is essential that they understand the organizational politics of the BIH

Program. Several things must be analyzed in order to understand the BIH Program at the state level and the policy implications that affect future funding. First, the environment in which the BIH Program exists is extremely complex and somewhat precarious. It is characterized by high levels of change and unpredictability, and staff must respond to constant demands for innovation. Many connections exist among individuals, groups and organizations surrounding BIH but these connections are loose and amorphous. The lines of responsibility are poorly defined; relationships and program priorities change often and a pervasive sense of chaos and borderline survival is constant. Understanding politics is an essential aspect of the BIH Program's organizational survival.

To understand the complexities of the BIH Program, it is necessary to look at the internal and external characteristics of the DHS and BIH operating systems. Externally, BIH is ruled by bureaucratic principles. Power is exercised by the written word and by control of the decision-making process. Internally, communication barriers -- unclear reporting lines and lack of openness between top directors/managers and various entities that influence the program -- have created in the staff a sense of powerlessness regarding their ability to pursue solutions. In addition, the current short-term nature of BIH funding does not allow the staff to fully invest themselves in building a more solid commitment to the organization.

Although it is clear that future funding of the BIH Program is in the hands of state legislators and influenced by the commitment of DHS to the program's goals, the complexity of the problems addressed by BIH requires a different leadership approach. African-American infant mortality in this country is not a simple issue. It is not a

medical problem but a social, political and economical one. Solutions require active partnerships among community members, legislators and health care organizations.

Leadership, of necessity, takes place in social contexts that are not static. Adaptation, change and evolution of social contexts are ongoing phenomena that determine how leadership is defined. Given the nature of the position of African-Americans in this society, it is obvious that we are in need of a different kind of national and local leadership. Defining a leadership philosophy in a rapidly changing environment is not an easy task. For decades theorists have been unable to agree on a definition of leadership or about how to conduct leadership studies.

Given this researcher's conviction that change for the better is possible and her desire to create a more egalitarian society, she holds that the most effective leadership is a collaborative process – educational, non-coercive – that achieves change by building on mutual purposes and by utilizing multidirectional influential relationships between leaders and collaborators. Beneficial leadership promotes transformation and empowerment and is engaged with humility and respect. It teaches compassion and encourages discussion, dialogue and divergent points of view. This philosophy of leadership relies primarily upon the theories proposed by Rost (1991), Burns (1976), Senge (1990), Heifetz (1994), Miller (1986), Gilligan (1982), Ricouer (1992) and Chrislip & Larson (1994).

The researcher agrees with several of the elements of Rost's leadership definition based on influential multidirectional relationships and the intent for change reflecting mutual purposes. Influence, the capacity to produce effects on others by intangible or indirect means, mutuality and non-coercion are essential to the understanding of leadership. Positive power comes from consensus, shared visions, and mutual purposes.

Leadership is more than a relationship; it is a collaborative process. According to Chrislip and Larson it is only by working together in constructive ways that we can accomplish desirable changes; local/global problems and issues are too complex for one person to resolve.

It is crucial to create good relationships among people in order to share visions and construct a picture of the future we seek together. A shared vision is the first step necessary for people to start working together, building the commitment that leads to consensus, utilizing the collective power necessary to achieve social change. Leadership is a dynamic process, a systematic series of actions directed to some end, a continuous action directed to change.

Leadership is also an educational process that encourages the kind of discussion and dialogue found in Senge's concept of team learning, learning community and learning organizations. If the goal is to practice collaborative leadership, to work together, team learning is the necessary process for developing the capacity of a group of people to achieve the results desired by mastering the practices of dialogue and discussion. The purpose of dialogue is to go beyond any one individual's understanding. It is the process that allows explorations from many different points of view, helping individuals to gain a collective insight they could not achieve alone.

The researcher believes that leadership must be transformational and empowering. Burns proposes moral leadership as the "transforming leadership {that} ultimately becomes moral in that it raises the level of human conduct and ethical aspiration of both leader and led, and thus it has a transforming effect on both." He proposes that leadership must be exercised in a near-universal manner, practicing ethical principles of justice such as equality of human rights and respect for individual dignity. Burns adds that the essence of

leadership in any case is the recognition of real need, the uncovering and exploiting of contradictions among values and between values and practice, the realigning of values, the reorganization of institutions where necessary, and the governance of change.

It takes moral leadership to set the tone of a debate that seeks to change the entrenched conditions responsible for present social problems such as disproportionately high African-American infant mortality rates. Moral leadership can achieve the lofty goals of complete social equality.

Leadership must be empowering. As collaborators and leaders engage in change, their continued interaction must lead to the empowerment of others that clarifies and strengthens their own views. As we endeavor to achieve collective social change, we must rediscover power as a two-way collaborative relationship that can energize democratic action.

Affiliation, attachment, cooperativeness, nurturing and caring are necessary to practice an interactive and transformational type of leadership grounded in humility, solicitude (Ricouer, 1992), equal respect and compassion. Leadership should be focused on building consensus around shared visions that promote mutual purposes. Relative to the issue of African-American infant mortality rates, partnerships among the community, departments of health services and governmental agencies must be built in order to identify the mutual purposes and shared ownership that will create the conditions for successful collaboration.

To free themselves from the restrictions of individualistic viewpoints all partners need to become a single community, a learning community that can practice living democracy and a democratic comunitarianism. Only then can these partnerships provide the leadership necessary to work toward health care for all. Fundamentally, it

is the individualistic ethic that prevents our society from honestly facing its public health problems. Unless this individualistic outlook is moderated in organizations like DHS, the larger community and the government, we will surely be faced with a health crisis of epic proportions.

Program Implications and Recommendations

The BIH population experienced better low birthweight rates than the rates for the state in comparable years. This is very significant, given the high-risk status of this population, the late entry to prenatal care and the short time of participation in BIH. In spite of these factors, BIH participants had better outcomes. It is the researcher's opinion that the BIH Program, with its culturally relevant elements contributed significantly to better pregnancy outcomes in a very high-risk population. If this is correct, the potential for benefits from programs such as these can be tremendous, especially if women are identified and linked early in pregnancy to prenatal care and culturally appropriate services.

The results of this study demonstrate that the problem of low birthweight is a complex one. Findings showed no sociodemographic differences between BIH participants with normal birthweight and low birthweight outcomes. This supports the argument that these differences may not be seen among disadvantaged women because of similarity of socioeconomic factors within the group. However, the results clearly illustrate that prematurity, history of poor pregnancy outcomes and behavioral factors such as cigarette, alcohol and illicit drug use during pregnancy are strong predictors of low birthweight in the BIH population.

Although the BIH Program has implemented unique intervention models incorporating many elements that respond to the need for culturally relevant interventions, there is still much work to be done. In addition to the existing interventions, it is essential that programs serving African-American pregnant women improve their methods for early identification of those at risk for preterm labor, those with previous poor pregnancy outcomes and those with chemical dependencies, who must receive services beyond those provided to other BIH participants. Such additional help may include more frequent contacts, closer relationships between BIH and other services, additional social support, monitoring and implementation of strategies for the prevention of prematurity and behavioral modification interventions.

It is unfortunate that the BIH intervention model developed to assist women with behavior modification, self-esteem and acquisition of positive behavioral skills was chosen for implementation by only one health jurisdiction. Given the strong correlation found between cigarette/alcohol/drug use and low birthweight, it is recommended that in the future the impact and effectiveness of this model be evaluated in depth. Study of evaluation results as well as the geographical distribution of women reported as smokers, drinkers or drug users must guide the modifications and recommendations for implementation of this model in the future. All at-risk African-American women and all those using cigarettes, alcohol or drugs during pregnancy must have access to comprehensive interventions to assist them in modifying these behaviors.

These findings are consistent with the results of other studies in relation to chemical use/dependency and poor pregnancy outcomes. However, this study's findings revealed the need for more in-depth study of the frequency and type of cigarette/alcohol/drugs used and the sources of negative influence on the behavioral

habits of the BIH participants. Further studies may provide public health professionals with a better understating of culturally effective ways to implement behavior modification techniques.

The goal of the BIH Outreach and Tracking model was to assist women in accessing early prenatal and other required services. Strategies included working closely with the community and health care providers and doing intensive street outreach to identify families in need of services. The study showed that the majority of women entered BIH late in their pregnancy, possibly as a result of the factors discussed earlier in this chapter. These are important issues that must be studied in more detail in order to effectively modify outreach strategies to meet the goal of early participation in BIH.

Study Limitations

As is true of every study, this one had its limitations. One of the most critical areas not investigated was the impact of culturally appropriate elements used by the interventions: kinship bonds, informal support networks (i.e. churches), ethnicity and the qualifications and community connections of BIH staff members.

A second limitation was lack of investigation into family attitudes and beliefs about health and medical care utilization as well as cultural practices, beliefs and values influencing access and utilization of interventions thought to be more culturally appropriate, such as the ones offered by the BIH Program. The study of these elements is crucial for understanding the cultural attributes of African-American women that contribute to positive pregnancy outcomes. This was particularly evident in the study of social network size and whether the baby's father and client's mother were

included in the woman's social network. Quality of relationships as well as influence and intensity of social support may be better measures to be used in the study of social support and its association with pregnancy outcomes.

The study was also limited by an insufficient amount of accurate data for analyzing service delivery and intensity of services. This is perhaps related to the high number of variables included in the database and the difficulty of the local projects in complying with extensive requirements for data collection and data entry. It is difficult to assess program impact without reliable data elements for critiquing service delivery by identifying type, frequency and amount of contacts. In addition, the BIH Program offered four different interventions that have unique culturally relevant strategies but differ greatly in content and delivery of services. No model-specific or site investigation was included in this study.

The use of self-reported data may have caused several limitations. For example, relying on clients' recall of key dates such as LMPs and EDCs may have led to inaccurate calculation of gestational age, a clinical parameter.

Finally, the limitations of using only quantitative research methodology to study such a complex and multifaceted problem were evident in this study.

Recommendations for Future Research

One of the main contributions of the study is that it has provided a comprehensive assessment of the amount and quality of the data available for the final statewide evaluation of the California Black Infant Health Program that will be conducted by San Diego State University. The extensive quality assurance efforts made to guarantee the integrity, validity and reliability of the study pointed out data

gaps and areas of inconsistencies, increased BIH staff awareness of the importance of data quality and identified potential limitations of future research absent more accurate and precise information. Therefore, if reliable key data elements are to be available for the final BIH evaluation, more intensive quality assurance efforts, similar to those used in this study, must be put in place immediately.

There are several avenues of inquiry that the researcher recommends in light of the findings and limitations of this study:

- **culturally appropriate elements used by the BIH interventions;**
- **African-American family attitudes and beliefs about health and medical care utilization;**
- **influence of cultural practices, beliefs and values on early utilization of interventions thought to be more culturally appropriate, such as the ones offered by the California BIH Program;**
- **social support and its association with birth outcomes, using a comprehensive approach that incorporates cultural differences regarding effective sources of social support. As proposed by others, such study must include emotional support, informational and tangible (goods or assistance) support, as well as available versus received support;**
- **frequency and type of chemicals used during pregnancy (cigarette, alcohol, illicit drugs and others) as well as sources of negative and positive influences on the behaviors of African-American pregnant women;**
- **BIH interventions' impact through accurate assessment of service delivery and intensity;**

- **impact of each BIH intervention separately and the geographical differences among the health jurisdictions.**

Finally, the above-recommended future studies must incorporate quantitative as well as qualitative research methodologies. Research is the diligent and systematic investigation of a subject for the purpose of discovering and interpreting facts, theories and applications. Qualitative and quantitative methodologies are complementary and serve different purposes. Methodology selection should be based on the principle of utilizing the best way to gather information for the specific situation and specific context of the study.

Qualitative methodology provides for data collection that is not constrained by predetermined categories of analysis. It permits detailed, in-depth study of selective issues, cases or events. This type of methodology is appropriate for increasing understanding of cultures, perceptions, feelings, beliefs and relationships. The information gained can then be utilized to identify skills, cultural attributes and qualities that may contribute to better pregnancy outcomes in the African-American population. Quantitative research methodology allows researchers to measure program impact, make comparisons, aggregate data, and conduct statistical analysis to produce a broad, generalizable set of findings. The use of both methodologies can provide a comprehensive approach to the study of African-American infant mortality in this country.

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APPENDICES

APPENDIX A

**California Black Infant Health
Data Forms**

Black Infant Health
Outreach/Tracking
Case Management
Health Behavior Modification
Social Support and Empowerment

Data Forms

Name: _____ **EDC:** _____/_____/_____

Local Case #: _____ **BIH-MIS Case #:** _____

Forms	Pg	Date Data Collected/ Revised Initials	Date MIS Entry Initials	Date Data Collected/ Revised Initials	Date MIS Entry Initials	Date Data Collected/ Revised Initials	Date MIS Entry Initials	Date Data Collected/ Revised Initials	Date MIS Entry Initials
Outreach Contact	1								
Client's Overview-Outreach	2								
Client Screening Instrument	3								
Client Demographics	4								
Client Medical History	5								
Client Reproductive History	6								
Client Current Pregnancy Part I	7								
Client Current Pregnancy Part II	7								
Psychosocial Factors	8								
Client Support System Information	9								
Partner Information Part I	10								
Partner Information Part II	10								
Client Referral Tracking Part I	11								
Client Referral Tracking Part II	12								

6/30/98

Outreach Contact

1

Local Case #:		BIH-MIS Case #:		
Last Name	First Name	M.I.	Nickname/AKA/Maiden	
Client's Home Address				
Street Number & Name			Apartment No.	
City	State	Zip Code		
Home phone ()	Message/Work phone ()	DOB ____/____/____		
Outreach Worker Assigned:				
Outreach Date: ____/____/____ (Required)				
Source of Outreach Referral:				
<input type="checkbox"/> Client (self)	<input type="checkbox"/> Canvass	<input type="checkbox"/> Agency	<input type="checkbox"/> Other	
	<input type="checkbox"/> Shelter	<input type="checkbox"/> Health Agency		
	<input type="checkbox"/> Grocery Store	<input type="checkbox"/> Social Services		
	<input type="checkbox"/> Laundromat	<input type="checkbox"/> Church		
	<input type="checkbox"/> Street	<input type="checkbox"/> Other		
	<input type="checkbox"/> Other			
If Agency Making Referral:				
Name: _____				
Address: _____				
City: _____		State: _____	Zip: _____	
Telephone: _____				
Contact Person: _____				
How much convincing was needed to recruit this client? (Circle one)				
1	2	3	4	5
minimum				most
Do you think that your partner is interested in participating in BIH (Role of Men)?				
<input type="checkbox"/> Yes <input type="checkbox"/> No				
Comments:				

Client's Overview-Outreach

BIH Entry Information

BIH Entry: ____/____/____ (Required for enrolled Clients) Re-Entry Date: ____/____/____

Primary Case Manager: _____

BIH Closing Information

BIH Closing Date: ____/____/____

Reason:

- 1. Service Completed
- 2. Client Voluntarily Exited
- 3. No Longer Eligible
- 4. Moved-No Transfer To Another BIH H.J.
- 5. Moved-Transfer To Another BIH H.J.
- 6. Unable To Locate/Unresponsive
- 7. Death-Index Child
- 8. Death-Client
- 9. Other

Things To Do

	Date
1. _____	____/____/____
2. _____	____/____/____
3. _____	____/____/____
4. _____	____/____/____
5. _____	____/____/____
6. _____	____/____/____
7. _____	____/____/____
8. _____	____/____/____

Type of BIH Contact (Circle)

Home Visits: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

Office Visits: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

Phone Calls: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

Field Visits: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

Positive Reinforcement Words & Statements

Local Case #: _____

BIH-MIS Case #: _____

Date: ____/____/____

CLIENT SCREENING INSTRUMENT

Screener's Name: _____

Job Title: _____

Interview

Self-Report

Time it took to complete _____

1. Are you under 18 years of age? Yes-1 No-0

2. Do you ever worry about making ends meet? Yes-1 No-0

3. Do you feel comfortable with your living arrangements? Yes-0 No-1

4. Do you see a doctor/nurse or go to a clinic for your pregnancy? Yes-0 No-1

5. Do you feel respected by the doctor/nurse, or other staff? Yes-0 No-1

6. If you could, would you go to a different doctor/clinic?
If yes and reason is "racism/discrimination" Yes No
If yes and reason is another reason Yes-1 No-0
 Yes-0 No-0

7. How important is it to keep your prenatal health care appointments?
Very Important Yes-0
Important Yes-1
Not Important Yes-1

8. If you were to miss a prenatal healthcare appointment, what would probably be the reason?
If reason is close to "no money/no insurance" Yes-1
If any other reason Yes-0

9. Please list the first names (or initials) of people you feel close to:

Name/Initials	Relationship
_____	_____
_____	_____
_____	_____
_____	_____

1. Mother
2. FOB
3. Other Relative
4. Not Relative

If fewer than 3 people Yes-1
If 3 or more people Yes-0

If all people listed above related to client Yes-1
If any people listed above not related to client Yes-0
If mother not on list Yes-1

10. Are you or have you been involved with gangs? Yes-1 No-0

11. Did any of the following happen to you in the last 12 months?
- You moved Yes-1 No-0
 - A close friend died Yes-1 No-0
 - Your income decreased Yes-1 No-0
 - Your partner physically hurt you Yes-1 No-0
 - You got into debt over your head Yes-1 No-0
 - You were involved in a physical fight Yes-1 No-0
 - Someone very close to you had a bad problem with drinking or drugs Yes-1 No-0
12. Did you feel any of the following in the past month?
- Woke up fresh and rested Yes-0 No-1
 - Had trouble paying attention Yes-1 No-0
 - So restless that you couldn't sit long in a chair Yes-1 No-0
 - Criticized a lot by others Yes-1 No-0
 - Very lonely or isolated from other people Yes-1 No-0
 - Bored Yes-1 No-0
13. Do you feel that your partner will be there for you once the baby is born? Yes-0 No-1
14. Does your partner provide you with financial support? Yes-0 No-1
15. Can you depend on your partner for financial support? Yes-0 No-1
16. Is your partner now or has he ever been in jail? Yes-1 No-0
17. Does your partner emotionally support this pregnancy? Yes-0 No-1
18. Do you drink liquor? Yes-1 No-0
19. Were you ever in a special class or in "special ed."? Yes-1 No-0
20. If you had a previous birth, was the baby born healthy?
(If no previous birth, leave blank) Yes-0 No-1

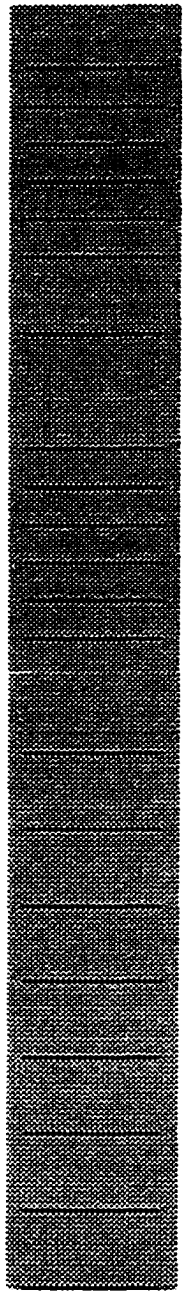
Total Score: _____

SERVICE DECISION (to be made after completing the Client Screening Instrument) (Required):

Staff Screening Instrument Score _____

- Enroll in BIH program
- _____ Outreach/Tracking
 - _____ Health Behavior Modification
 - _____ Case Management
 - _____ Social Support & Empowerment
- Refer out (Not Enrolled in BIH) _____

Exception to cut-off point: Enrollment based on the existence of the following problem



Client's Demographics

Local Case #:		BIH-MIS Case #:		
Last Name	First Name	M.I.	Nickname/AKA/Maiden	
Client's Home Address				
Street Number & Name	Apartment No.	City	State	Zip Code
Client's Mailing Address				
Street Number & Name	Apartment No.	City	State	Zip Code
Home phone () ()	Message/Work phone () ()		P. O. Box: DOB Age SSN	

Monthly Gross Income: \$ _____

- | | | | |
|--|--|---|--|
| <p>a. Primary Income Source.</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> Employment 2. <input type="checkbox"/> Self-employment 3. <input type="checkbox"/> Unemployment Ins. 4. <input type="checkbox"/> Partner 5. <input type="checkbox"/> Parents 6. <input type="checkbox"/> AFDC 7. <input type="checkbox"/> SSI/Disability 8. <input type="checkbox"/> County/Court Support 9. <input type="checkbox"/> Disability 10. <input type="checkbox"/> General Relief 11. <input type="checkbox"/> Other 12. <input type="checkbox"/> Unknown 13. <input type="checkbox"/> None 14. <input type="checkbox"/> Declined to Respond | <p>b. Employment Status</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> Not employed 2. <input type="checkbox"/> Part-time 3. <input type="checkbox"/> Full-time 4. <input type="checkbox"/> Seasonal 5. <input type="checkbox"/> Unknown 6. <input type="checkbox"/> Volunteer | <p>c. Education Status</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> None 2. <input type="checkbox"/> Elementary School (1-6) 3. <input type="checkbox"/> Middle/Jr High School (7-9) 4. <input type="checkbox"/> High School (10-12)-Didn't graduate 5. <input type="checkbox"/> High School Graduate/GED 6. <input type="checkbox"/> Attended College-No degree 7. <input type="checkbox"/> Associate Degree 8. <input type="checkbox"/> Bachelor's Degree 9. <input type="checkbox"/> Master's Degree 10. <input type="checkbox"/> Vocational School 11. <input type="checkbox"/> Unknown | <p>d. School Attendance</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> Not Attending 2. <input type="checkbox"/> Full-time High Sch. 3. <input type="checkbox"/> Part-time High Sch. 4. <input type="checkbox"/> Full-time College 5. <input type="checkbox"/> Part-time College 6. <input type="checkbox"/> Vocational 7. <input type="checkbox"/> Other 8. <input type="checkbox"/> Unknown |
| <p>e. Housing Needs</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> Not Required 2. <input type="checkbox"/> Required Urgently 3. <input type="checkbox"/> Required within 2 Weeks 4. <input type="checkbox"/> Required within 30 Days 5. <input type="checkbox"/> Required within 60 Days 6. <input type="checkbox"/> Required within 120 Days 7. <input type="checkbox"/> Unknown | <p>f. Transportation Need</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> Not Required 2. <input type="checkbox"/> Required Occasionally 3. <input type="checkbox"/> Required Full-time 4. <input type="checkbox"/> Unknown | <p>g. Marital Status</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> Married to Father of the Baby 2. <input type="checkbox"/> Married to Other Than FOB 3. <input type="checkbox"/> Single 4. <input type="checkbox"/> Divorced 5. <input type="checkbox"/> Separated 6. <input type="checkbox"/> Widowed 7. <input type="checkbox"/> Unknown | <p>h. Judicial Problem</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> None 2. <input type="checkbox"/> Pending 3. <input type="checkbox"/> Incarcerated 4. <input type="checkbox"/> Probation 5. <input type="checkbox"/> Parole 6. <input type="checkbox"/> Unknown |
| <p>i. Child Care Needs</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> Not Required 2. <input type="checkbox"/> Required Urgently 3. <input type="checkbox"/> Required in 2 Weeks 4. <input type="checkbox"/> Required in 30 Days 5. <input type="checkbox"/> Required in 60 Days 6. <input type="checkbox"/> Required in 120 Days 7. <input type="checkbox"/> Unknown | <p>j. English Proficiency</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> English only 2. <input type="checkbox"/> Fully English Proficient 3. <input type="checkbox"/> Limited English Proficient 4. <input type="checkbox"/> Non-English Speaking 5. <input type="checkbox"/> Status Unknown 6. <input type="checkbox"/> Redesignated Fluent English Proficiency | <p>k. Preferred Language</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> English 2. <input type="checkbox"/> Spanish 3. <input type="checkbox"/> French 4. <input type="checkbox"/> Other | |

Children (List Youngest)

	Sex	Age	Name	
1.	_____	_____	_____	Total # of Children: _____
2.	_____	_____	_____	Total # of Children Living with Client: _____
3.	_____	_____	_____	

Client's Medical History

Previous Conditions (Most Recent)

None

Unknown

Date:

____/____/____

____/____/____

____/____/____

____/____/____

____/____/____

____/____/____

____/____/____

____/____/____

____/____/____

____/____/____

____/____/____

____/____/____

____/____/____

Anemia

Asthma

Chlamydia

High Cholesterol

Diabetes-Chronic

Fibroids

Gonorrhea

Heart Disease

Hepatitis B

Herpes

Hypertension

Mitral Valve Prolapse

Pneumonia

Date:

____/____/____

____/____/____

____/____/____

____/____/____

____/____/____

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____/____/____

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____/____/____

____/____/____

____/____/____

Psychological Problems

Pyelonephritis

Rh Negative

Seizures

Sickle Cell

Substance Abuse

Syphilis

Transfusions

Trichomonas

Tuberculosis

Ulcer

Urinary Tract Infection

Venereal Warts

Other _____

Previous Health Services

If Problem, explain:

Pap smear

Date of most recent:

____/____/____

Gynecological Examination

____/____/____

Physical Examination

____/____/____

HIV Test

____/____/____

Dental Examination

____/____/____

Local Case #: _____

BIH-MIS Case #: _____

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Client's Reproductive History

Previous Pregnancy (Required) (Do not include current pregnancy)

of Previous Pregnancies _____ # of Births _____

of Spontaneous Abortions _____ # Terminated _____

(# of births + # of SABs + # of terminated should equal # of pregnancies, except for multiple births)

Previous Pregnancy Problems (Most Recent)

None Unknown

Date:

____/____/____

____/____/____

____/____/____

____/____/____

____/____/____

____/____/____

____/____/____

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____/____/____

____/____/____

- Abruptio Placenta
- Anemia
- Babies < 5 lbs 8 oz
- Babies > 9 lbs
- Breech
- Cesarean Sections
- Birth Defects
- Ectopic Pregnancy
- Gestational Diabetes
- Hypertension-Pregnancy Induced
- Intrauterine Fetal Demise
- Neonatal Death
- Post Neonatal Death
- Placenta Previa
- Postpartum Hemorrhage
- Preterm Delivery
- Preterm Labor
- Pyelonephritis
- Urinary Tract Infection
- Others _____

Birth Control Methods Prior to This Pregnancy

Birth Control Pills

Condoms

Depo-Provera

Diaphragm/Cap

Foam

IUD/Intrauterine Device

Norplant

Rhythm/Natural

Tubal Ligation

Vasectomy

Withdrawal

None

Unknown

Previous Complications:

Local Case #: _____

BIH-MIS Case #: _____

7-1

Client's Current Pregnancy-Part 1

<p>Pregnancy Information</p> <p style="text-align: center;">MM/DD/YY</p> <p>LMP ___/___/___</p> <p>EDC ___/___/___</p> <p>PNC Provider Name: _____</p> <hr/> <p>PNC Visits Dates:</p> <table style="width:100%; border-collapse: collapse;"> <tr><td>___/___/___</td><td>___/___/___</td></tr> <tr><td>___/___/___</td><td>___/___/___</td></tr> <tr><td>___/___/___</td><td>___/___/___</td></tr> <tr><td>___/___/___</td><td>___/___/___</td></tr> <tr><td>___/___/___</td><td>___/___/___</td></tr> <tr><td>___/___/___</td><td>___/___/___</td></tr> <tr><td>___/___/___</td><td>___/___/___</td></tr> <tr><td>___/___/___</td><td>___/___/___</td></tr> <tr><td>___/___/___</td><td>___/___/___</td></tr> <tr><td>___/___/___</td><td>___/___/___</td></tr> </table>	___/___/___	___/___/___	___/___/___	___/___/___	___/___/___	___/___/___	___/___/___	___/___/___	___/___/___	___/___/___	___/___/___	___/___/___	___/___/___	___/___/___	___/___/___	___/___/___	___/___/___	___/___/___	___/___/___	___/___/___	<p>Planned Pregnancy? <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Unknown</p> <p>Number of Prenatal Visits Attended with Client by</p> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Partner</td> <td style="text-align: center;">Family</td> <td style="text-align: center;">Friends</td> </tr> <tr> <td style="text-align: center;">1 2 3 4 5 6 7 8 9</td> <td style="text-align: center;">1 2 3 4 5 6 7 8 9</td> <td style="text-align: center;">1 2 3 4 5 6 7 8 9</td> </tr> </table> <p>Current Pregnancy Problems</p> <p>MM/DD/YY ___/___/___</p> <table style="width:100%; border-collapse: collapse;"> <tr> <td><input type="checkbox"/> None</td> <td><input type="checkbox"/> Unknown</td> </tr> <tr> <td><input type="checkbox"/> Anemia</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Gestational Diabetes</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Hypertension-Pregnancy Induced</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Placenta Previa</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Premature Labor</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Pyelonephritis</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Rh Negative</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Urinary Tract Infection</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Other _____</td> <td></td> </tr> </table>	Partner	Family	Friends	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	<input type="checkbox"/> None	<input type="checkbox"/> Unknown	<input type="checkbox"/> Anemia		<input type="checkbox"/> Gestational Diabetes		<input type="checkbox"/> Hypertension-Pregnancy Induced		<input type="checkbox"/> Placenta Previa		<input type="checkbox"/> Premature Labor		<input type="checkbox"/> Pyelonephritis		<input type="checkbox"/> Rh Negative		<input type="checkbox"/> Urinary Tract Infection		<input type="checkbox"/> Other _____	
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<input type="checkbox"/> Other _____																																															

Medication	Current Medication	Duration	Dose	Reason

<p>Primary Payment Source</p> <table style="width:100%; border-collapse: collapse;"> <tr> <td>1. <input type="checkbox"/> Medicare</td> <td>8. <input type="checkbox"/> HMO/PHP</td> </tr> <tr> <td>2. <input type="checkbox"/> Medi-Cal</td> <td>9. <input type="checkbox"/> Self-Pay</td> </tr> <tr> <td>3. <input type="checkbox"/> Worker's Compensation</td> <td>10. <input type="checkbox"/> No Charge</td> </tr> <tr> <td>4. <input type="checkbox"/> Title V</td> <td>11. <input type="checkbox"/> Other Non-Government</td> </tr> <tr> <td>5. <input type="checkbox"/> Other Government</td> <td>12. <input type="checkbox"/> Medically Indigent</td> </tr> <tr> <td>6. <input type="checkbox"/> Blue Cross/Blue Shield</td> <td>13. <input type="checkbox"/> Unknown</td> </tr> <tr> <td>7. <input type="checkbox"/> Insurance Company</td> <td></td> </tr> </table>	1. <input type="checkbox"/> Medicare	8. <input type="checkbox"/> HMO/PHP	2. <input type="checkbox"/> Medi-Cal	9. <input type="checkbox"/> Self-Pay	3. <input type="checkbox"/> Worker's Compensation	10. <input type="checkbox"/> No Charge	4. <input type="checkbox"/> Title V	11. <input type="checkbox"/> Other Non-Government	5. <input type="checkbox"/> Other Government	12. <input type="checkbox"/> Medically Indigent	6. <input type="checkbox"/> Blue Cross/Blue Shield	13. <input type="checkbox"/> Unknown	7. <input type="checkbox"/> Insurance Company		<p>Health Plan Name</p> <p>_____</p> <p>Plan Number _____</p> <p>CPSP Client <input type="checkbox"/></p>
1. <input type="checkbox"/> Medicare	8. <input type="checkbox"/> HMO/PHP														
2. <input type="checkbox"/> Medi-Cal	9. <input type="checkbox"/> Self-Pay														
3. <input type="checkbox"/> Worker's Compensation	10. <input type="checkbox"/> No Charge														
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6. <input type="checkbox"/> Blue Cross/Blue Shield	13. <input type="checkbox"/> Unknown														
7. <input type="checkbox"/> Insurance Company															

Prepregnancy Weight (lbs): _____ Client's Height: _____ ft _____ in

Chronic Illness: _____

Mental Illness: _____

Allergies: _____

Med. Allergies: _____

Notes/Complications:

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Cigarette Use During Pregnancy

1. Never/None
2. Stopped Before Conception
3. Quit First Trimester
4. Quit Second Trimester
5. Quit Third Trimester
6. Smokes or Resumed During Pregnancy
7. Use Denied-But Suspected
8. Unknown
9. Declined to Respond

How Much

1. Less Than 1/2 Pack/Day
2. Less Than 1 Pack /Day
3. One Pack/Day
4. More Than One Pack/Day
5. Unknown

Daily Exposure to Second Hand Smoke

- Yes-At Work
 Yes-At Home

Alcohol Use During Pregnancy

1. Never/None
2. Stopped Before Conception
3. Quit First Trimester
4. Quit Second Trimester
5. Quit Third Trimester
6. Drinks or Resumed During Pregnancy
7. Use Denied-But Suspected
8. Unknown
9. Declined to Respond

How Much

1. One Drink
2. Two Drink
3. Three Drinks
4. Four Drinks
5. Intoxication
6. Occasional Intoxication
7. Binge/Episodic
8. Denied but Suspected
9. Declined to Respond

Frequency

1. Everyday
2. Twice a Week
3. Weekends
4. Once a Month
5. Occasionally
6. Unknown

Rehab Date: _____/_____/_____

Completed Site/Agency: _____

Illicit Drug Use

Never used No current use

First Drug:

1. Cocaine/ Crack Cocaine
2. Marijuana
3. Methamphetamine
4. Hallucinogens (PCP, LSD, Mescaline)
5. Tranquilizers (Valium, Thorazine)
6. Inhalants (Glue Sniffing)
7. Methadone
8. Barbiturates
9. Heroin/Opiates (Morphine, Codeine, Opium)
10. Other
11. Use Denied-But Suspected
12. Declined to Respond
13. Unknown

Second Drug:

1. Cocaine/ Crack Cocaine
2. Marijuana
3. Methamphetamine
4. Hallucinogens (PCP, LSD, Mescaline)
5. Tranquilizers (Valium, Thorazine)
6. Inhalants (Glue Sniffing)
7. Methadone
8. Barbiturates
9. Heroin/Opiates (Morphine, Codeine, Opium)
10. Other
11. Use Denied-But Suspected
12. Declined to Respond
13. Unknown

Third Drug:

1. Cocaine/ Crack Cocaine
2. Marijuana
3. Methamphetamine
4. Hallucinogens (PCP, LSD, Mescaline)
5. Tranquilizers (Valium, Thorazine)
6. Inhalants (Glue Sniffing)
7. Methadone
8. Barbiturates
9. Heroin/Opiates (Morphine, Codeine, Opium)
10. Other
11. Use Denied-But Suspected
12. Declined to Respond
13. Unknown

_____ Times per

Day Week Month

_____ Times per

Day Week Month

_____ Times per

Day Week Month

Rehab Date: _____/_____/_____ Completed Site/Agency: _____

Local Case #: _____

BIH-MIS Case #: _____

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Client's Concerns/Challenges Re:

- None
 Unprepared for Baby
 Unprepared for Birth
 Birthing
 Child Abuse
 Child Care
 Cultural Beliefs
 Debt/Finances
 Depression
 Employment
 Environment
 Family Disapproval
 Housing
 Judicial
 Living Situation
- Neighborhood
 Nutrition
 Partner Abuse
 Partner Preparedness
 Pregnancy
 Psychiatric
 Sexual Abuse
 Social Support
 Substance Abuse
 Transportation
 Violence-Family
 Violence-Community
 Other _____

Social Support From:

- None
 Baby's Father
 Client's Mother
 Client's Father
 Grandparents
 Sister
 Brother
 Other Relative
 Friend
 Church Member
 Community Member
 Community Agency
 Psychiatrist
 Subst. Abuse Counselor
 Other

Client's Reaction to Preg.

1. Wants Child
2. Does Not Want Child
3. Ambivalent
4. Other
5. Unknown

Father's Reaction to Preg.

1. Wants Child
2. Does Not Want Child
3. Ambivalent
4. Denies Paternity
5. Other
6. Unknown

Client's Residence Type

1. Client's Home (own or rent)
2. Parents' or Guardians' Home
3. Other Adults' Home
4. Foster Home
5. Boarding House
6. Cooperative House
7. Dormitory
8. Rooming House
9. Shelter/Crisis
10. Shelter/Disaster
11. Shelter/Transient
12. Licensed Children's Center
13. Residential Treatment Center
14. Youth Detention Center
15. No Home
16. Other
17. Unknown

Family/Living Situation

1. Living with Father of Baby
2. Living with Other Than Father of Baby
3. Living with Family
4. Living with Friend(s)
5. Living Alone
6. Unknown

Household Size: _____

Local Case #: _____

BIH-MIS Case #: _____

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Client's Support System Information

For FOB or Partner, see Partner Info Form

Name	Address	Area	Telephone
Client's Mother			
Client's Father			
Client's Grandparent(s)			
Client's Relative(s)			
Client's Friend(s)			
Church/Religious Organization			
Community Member(s)			
Community Agency			
Social Worker			
Substance Abuse Counselor			
Abuse Counselor			
Other			

Local Case #: _____

BIH-MIS Case #: _____

Partner Information-Part 1

Last Name		First Name		M.I.	Nickname/AKA	
Street Address			Apt #	City		State
Home phone			Message/work phone		DOB	SSN
						Father of Baby: Yes ___ No ___

a. Primary Income Source 1. <input type="checkbox"/> Employment 2. <input type="checkbox"/> Self-employment 3. <input type="checkbox"/> Unemployment Ins. 4. <input type="checkbox"/> Partner 5. <input type="checkbox"/> Parents 6. <input type="checkbox"/> AFDC 7. <input type="checkbox"/> SSI/Disability 8. <input type="checkbox"/> County/Court support 9. <input type="checkbox"/> Disability 10. <input type="checkbox"/> General relief 11. <input type="checkbox"/> Other 12. <input type="checkbox"/> Unknown 13. <input type="checkbox"/> None	b. Financial Support to 1. <input type="checkbox"/> Mother 2. <input type="checkbox"/> Child 3. <input type="checkbox"/> Both 4. <input type="checkbox"/> Unknown 5. <input type="checkbox"/> None	c. Employment Status 1. <input type="checkbox"/> Not employed 2. <input type="checkbox"/> Part Time 3. <input type="checkbox"/> Full Time 4. <input type="checkbox"/> Seasonal 5. <input type="checkbox"/> Unknown 6. <input type="checkbox"/> Volunteer	d. Type of Work 1. <input type="checkbox"/> Construction 2. <input type="checkbox"/> Technical 3. <input type="checkbox"/> Professional 4. <input type="checkbox"/> Unskilled 5. <input type="checkbox"/> Laborer 6. <input type="checkbox"/> Unknown
h. Judicial Problems 1. <input type="checkbox"/> None 2. <input type="checkbox"/> Pending 3. <input type="checkbox"/> Incarcerated 4. <input type="checkbox"/> Probation 5. <input type="checkbox"/> Parole 6. <input type="checkbox"/> Unknown	e. Education Status 1. <input type="checkbox"/> None 2. <input type="checkbox"/> Elementary School (1-6) 3. <input type="checkbox"/> Middle/Jr High School (7-9) 4. <input type="checkbox"/> High School (10-12)- Did not graduate 5. <input type="checkbox"/> High School Graduate/GED 6. <input type="checkbox"/> Attended College-No degree 7. <input type="checkbox"/> Associate Degree 8. <input type="checkbox"/> Bachelor's Degree 9. <input type="checkbox"/> Master's Degree 10. <input type="checkbox"/> Vocational School 11. <input type="checkbox"/> Unknown	f. School Attendance. 1. <input type="checkbox"/> Not Attending 2. <input type="checkbox"/> Full Time-HS 3. <input type="checkbox"/> Part Time-HS 4. <input type="checkbox"/> Full Time-College 5. <input type="checkbox"/> Part Time-College 6. <input type="checkbox"/> Vocational 7. <input type="checkbox"/> Other 8. <input type="checkbox"/> Unknown	g. General Health 1. <input type="checkbox"/> Excellent 2. <input type="checkbox"/> Good 3. <input type="checkbox"/> Fair 4. <input type="checkbox"/> Poor 5. <input type="checkbox"/> Unknown
i. Marital Status 1. <input type="checkbox"/> Married to Client 2. <input type="checkbox"/> Married to Other than Client 3. <input type="checkbox"/> Single 4. <input type="checkbox"/> Divorced 5. <input type="checkbox"/> Separated 6. <input type="checkbox"/> Widowed 7. <input type="checkbox"/> Unknown	j. Reaction To Pregnancy 1. <input type="checkbox"/> Wants Child 2. <input type="checkbox"/> Does not Want Child 3. <input type="checkbox"/> Ambivalent 4. <input type="checkbox"/> Denies paternity 5. <input type="checkbox"/> Other 6. <input type="checkbox"/> Unknown	k. Infant Contact 1. <input type="checkbox"/> Daily 2. <input type="checkbox"/> 2 to 6 per week 3. <input type="checkbox"/> 1 per week 4. <input type="checkbox"/> 2 to 3 per month 5. <input type="checkbox"/> 1 per month 6. <input type="checkbox"/> None 7. <input type="checkbox"/> Other 8. <input type="checkbox"/> Unknown	l. Parenting/Skills 1. <input type="checkbox"/> Active Care Giving 2. <input type="checkbox"/> Occasional Care Giving 3. <input type="checkbox"/> Visits-Without Care Giving 4. <input type="checkbox"/> No Contact 5. <input type="checkbox"/> Unknown
m. English Proficiency 1. <input type="checkbox"/> English only 2. <input type="checkbox"/> Fully English Proficient 3. <input type="checkbox"/> Limited English Proficient	4. <input type="checkbox"/> Non-English Speaking 5. <input type="checkbox"/> Status Unknown 6. <input type="checkbox"/> Redesignated Fluent English Proficient	n. Preferred Language 1. <input type="checkbox"/> English 2. <input type="checkbox"/> Spanish 3. <input type="checkbox"/> French 4. <input type="checkbox"/> Chinese 5. <input type="checkbox"/> Arabic 6. <input type="checkbox"/> Vietnamese 7. <input type="checkbox"/> Other	

Vocational Training Site:

Children (List Youngest)													
<table style="width:100%; border: none;"> <tr> <td style="text-align: center; width: 10%;">Sex</td> <td style="text-align: center; width: 10%;">Age</td> <td style="text-align: center; width: 80%;">Name</td> </tr> <tr> <td style="text-align: center;">1.</td> <td style="text-align: center;">_____</td> <td style="text-align: center;">_____</td> </tr> <tr> <td style="text-align: center;">2.</td> <td style="text-align: center;">_____</td> <td style="text-align: center;">_____</td> </tr> <tr> <td style="text-align: center;">3.</td> <td style="text-align: center;">_____</td> <td style="text-align: center;">_____</td> </tr> </table>	Sex	Age	Name	1.	_____	_____	2.	_____	_____	3.	_____	_____	Total # of Children: _____ Total # of Children Living with Partner: _____
Sex	Age	Name											
1.	_____	_____											
2.	_____	_____											
3.	_____	_____											

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Cigarette Use During Pregnancy

- 1. Never/None
- 2. Stopped Before Conception
- 3. Quit First Trimester
- 4. Quit Second Trimester
- 5. Quit Third Trimester
- 6. Smokes or Resumed During Pregnancy
- 7. Use Denied-But Suspected
- 8. Declined to Respond
- 9. Unknown

How Much

- 1. Less Than 1/2 Pack/Day
- 2. Less Than 1 Pack /Day
- 3. One Pack/Day
- 4. More Than One Pack/Day
- 5. Unknown

Daily Exposure to Second Hand Smoke

- Yes-At Work
- Yes-At Home

Alcohol Use

- 1. Never/None
- 2. One Drink
- 3. Two Drink
- 4. Three Drinks
- 5. Four Drinks
- 6. Intoxication
- 7. Occasional Intoxication
- 8. Binge/Episodic
- 9. Denied but Suspected
- 10. Declined to Respond
- 11. Unknown

Frequency

- 1. Everyday
- 2. Twice a Week
- 3. Weekends
- 4. Once a Month
- 5. Occasionally
- 6. Unknown

Rehab Date: _____/_____/_____

Completed Site/Agency: _____

Illicit Drug Use

Never used No current use

First Drug:

- 1. Cocaine/Crack Cocaine
- 2. Marijuana
- 3. Methamphetamine
- 4. Hallucinogens (PCP, LSD, Mescaline)
- 5. Tranquilizers (Valium, Thorazine)
- 6. Inhalants (Glue Sniffing)
- 7. Methadone
- 8. Barbiturates
- 9. Heroin/Opiates (Morphine, Codeine, Opium)
- 10. Other
- 11. Use Denied-But Suspected
- 12. Declined to Respond
- 13. Unknown

Second Drug:

- 1. Cocaine/Crack Cocaine
- 2. Marijuana
- 3. Methamphetamine
- 4. Hallucinogens (PCP, LSD, Mescaline)
- 5. Tranquilizers (Valium, Thorazine)
- 6. Inhalants (Glue Sniffing)
- 7. Methadone
- 8. Barbiturates
- 9. Heroin/Opiates (Morphine, Codeine, Opium)
- 10. Other
- 11. Use Denied-But Suspected
- 12. Declined to Respond
- 13. Unknown

Third Drug:

- 1. Cocaine/Crack Cocaine
- 2. Marijuana
- 3. Methamphetamine
- 4. Hallucinogens (PCP, LSD, Mescaline)
- 5. Tranquilizers (Valium, Thorazine)
- 6. Inhalants (Glue Sniffing)
- 7. Methadone
- 8. Barbiturates
- 9. Heroin/Opiates (Morphine, Codeine, Opium)
- 10. Other
- 11. Use Denied-But Suspected
- 12. Declined to Respond
- 13. Unknown

____ Times per

Day Week Month

____ Times per

Day Week Month

____ Times per

Day Week Month

Rehab Date: _____/_____/_____ Completed Site/Agency: _____

Local Case #: _____

BIH-MIS Case #: _____

Client Referral Tracking - Part 1

	Date Referred MM/DD/YY	# of times Referred	Referral Provider/Agency (Most Recent)	Client Barriers (Most Recent)	Follow Up Date (Choose # from list below)	Final Referral Results
Pregnancy Services						
1. Adolescent	___/___/___	___	_____	_____	___/___/___	_____
2. Childbirth Education	___/___/___	___	_____	_____	___/___/___	_____
3. Genetic Services	___/___/___	___	_____	_____	___/___/___	_____
4. High Risk Pregnancy	___/___/___	___	_____	_____	___/___/___	_____
5. Prenatal Care	___/___/___	___	_____	_____	___/___/___	_____
6. WIC (Prenatal)	___/___/___	___	_____	_____	___/___/___	_____
7. Substance Abuse	___/___/___	___	_____	_____	___/___/___	_____
8. Public Health Nurse	___/___/___	___	_____	_____	___/___/___	_____
Barriers to Keeping Referral			Referral Results			
1. Child Care				1. Received Service		
2. Transportation				2. Referred, But Did Not Go		
3. Forgot Appointment				3. Referral Not Accessible		
4. Unavailable Appointment				4. Referral Not Available		
5. Unable to Locate Agency				5. Referral Refused		
6. Lack of Support from Partner				6. Not Eligible for Service		
7. Lack of Money/Insurance for Care				7. Referred, Unknown Outcome		
8. Negative Experience with Previous Treatment				8. Unknown		
9. Unknown						
10. Other : _____						

Local Case #: _____

BIH-MIS Case #: _____

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	Date Referred MM/DD/YY	# of times Referred	Referral Provider/Agency (Most Recent)	Client Barriers (Most Recent)	Follow Up Date (Choose # from list below)	Final Referral Results
Family/Support Services						
1. WIC(Children)	___/___/___	___	_____	_____	___/___/___	_____
2. Medi-Cal Assistance	___/___/___	___	_____	_____	___/___/___	_____
3. Public Assistance	___/___/___	___	_____	_____	___/___/___	_____
4. Disability-Client/Family Member	___/___/___	___	_____	_____	___/___/___	_____
5. Child Abuse/Neglect	___/___/___	___	_____	_____	___/___/___	_____
6. Child Care	___/___/___	___	_____	_____	___/___/___	_____
7. Transportation	___/___/___	___	_____	_____	___/___/___	_____
8. Food/Nutrition Services	___/___/___	___	_____	_____	___/___/___	_____
9. Housing/Shelter	___/___/___	___	_____	_____	___/___/___	_____
10. Legal Assistance	___/___/___	___	_____	_____	___/___/___	_____
11. Medical Equipment/Appliances	___/___/___	___	_____	_____	___/___/___	_____
12. Probation/Justice System	___/___/___	___	_____	_____	___/___/___	_____

Barriers to Keeping Referral

1. Child Care
2. Transportation
3. Forgot Appointment
4. Unavailable Appointment
5. Unable to Locate Agency
6. Lack of Support from Partner
7. Lack of Money/Insurance for Care
8. Negative Experience with Previous Treatment
9. Unknown
10. Other :

Final Referral Results

1. Received Service
2. Referred, But Did Not Go
3. Referral Not Accessible
4. Referral Not Available
5. Referral Refused
6. Not Eligible for Service
7. Referred, Unknown Outcome
8. Unknown

Local Case #: _____

BIH-MIS Case #: _____

Client Referral Tracking - Part 3

	Date Referred MM/DD/YY	# of times Referred	Referral Provider/Agency (Most Recent)	Client Barriers (Most Recent)	Follow Up Date (Choose # from list below)	Final Referral Results
Postpartum Services						
1. Breastfeeding	___/___/___	___	_____	_____	___/___/___	_____
2. Home Care	___/___/___	___	_____	_____	___/___/___	_____
3. Parenting Support	___/___/___	___	_____	_____	___/___/___	_____
4. Family Planning	___/___/___	___	_____	_____	___/___/___	_____
Newborn Care						
1. Adoption	___/___/___	___	_____	_____	___/___/___	_____
2. Infant Care	___/___/___	___	_____	_____	___/___/___	_____
3. Child Growth and Development	___/___/___	___	_____	_____	___/___/___	_____
4. Special Needs Newborn/Infant	___/___/___	___	_____	_____	___/___/___	_____
5. Immunizations	___/___/___	___	_____	_____	___/___/___	_____
Barriers to Keeping Referral			Final Referral Results			
1. Child Care				1. Received Service		
2. Transportation				2. Referred, But Did Not Go		
3. Forgot Appointment				3. Referral Not Accessible		
4. Unavailable Appointment				4. Referral Not Available		
5. Unable to Locate Agency				5. Referral Refused		
6. Lack of Support from Partner				6. Not Eligible for Service		
7. Lack of Money/Insurance for Care				7. Referred, Unknown Outcome		
8. Negative Experience with Previous Treatment				8. Unknown		
9. Unknown						
10. Other : _____						

Local Case #: _____

BIH-MIS Case #: _____

	Date Referred MM/DD/YY	# of times Referred	Referral Provider/Agency (Most Recent)	Client Barriers (Most Recent)	Follow Up Date (Choose # from list below)	Final Referral Results
Counseling & Education						
1. Family Violence	___/___/___	___	_____	_____	___/___/___	_____
2. Grief Counseling	___/___/___	___	_____	_____	___/___/___	_____
3. Postpartum Depression	___/___/___	___	_____	_____	___/___/___	_____
4. Substance Abuse	___/___/___	___	_____	_____	___/___/___	_____
5. Parenting Education	___/___/___	___	_____	_____	___/___/___	_____
6. GED	___/___/___	___	_____	_____	___/___/___	_____
7. Adult Education	___/___/___	___	_____	_____	___/___/___	_____
8. Vocational & Jobs	___/___/___	___	_____	_____	___/___/___	_____

Barriers to Keeping Referral

1. Child Care
2. Transportation
3. Forgot Appointment
4. Unavailable Appointment
5. Unable to Locate Agency
6. Lack of Support from Partner
7. Lack of Money/Insurance for Care
8. Negative Experience with Previous Treatment
9. Unknown
10. Other : _____

Final Referral Results

1. Received Service
2. Referred, But Did Not Go
3. Referral Not Accessible
4. Referral Not Available
5. Referral Refused
6. Not Eligible for Service
7. Referred, Unknown Outcome
8. Unknown

Local Case #: _____

BIH-MIS Case #: _____

	Date Referred MM/DD/YY	# of times Referred	Referral Provider/Agency (Most Recent)	Client Barriers (Most Recent)	Follow Up Date (Choose # from list below)	Final Referral Results
Case Management						
1. Pregnancy	___/___/___	___	_____	_____	___/___/___	_____
2. Postpartum	___/___/___	___	_____	_____	___/___/___	_____
3. Newborn Care	___/___/___	___	_____	_____	___/___/___	_____
4. Finding a Doctor	___/___/___	___	_____	_____	___/___/___	_____
Other Services						
_____	___/___/___	___	_____	_____	___/___/___	_____
_____	___/___/___	___	_____	_____	___/___/___	_____
_____	___/___/___	___	_____	_____	___/___/___	_____
_____	___/___/___	___	_____	_____	___/___/___	_____
_____	___/___/___	___	_____	_____	___/___/___	_____
_____	___/___/___	___	_____	_____	___/___/___	_____
Barriers to Keeping Referral			Final Referral Results			
1. Child Care				1. Received Service		
2. Transportation				2. Referred, But Did Not Go		
3. Forgot Appointment				3. Referral Not Accessible		
4. Unavailable Appointment				4. Referral Not Available		
5. Unable to Locate Agency				5. Referral Refused		
6. Lack of Support from Partner				6. Not Eligible for Service		
7. Lack of Money/Insurance for Care				7. Referred, Unknown Outcome		
8. Negative Experience with Previous Treatment				8. Unknown		
9. Unknown						
10. Other : _____						

Local Case #: _____

BIH-MIS Case #: _____

Birth Outcome-First Infant

Pregnancy Outcome Date: _____ / _____ / _____ (Required)

Gestation Weeks: _____ Delivery Site: _____

Maternity Hospital Code: _____ Days Client in Hospital: _____ Reason: _____

Rehospitalization of Client Related to Birth-Days _____ Reason: _____

Delivery Attendant	Type of Delivery	Pregnancy Outcome	Delivery Complications
1. <input type="checkbox"/> Physician/Medical Doctor	1. <input type="checkbox"/> Vaginal	1. <input type="checkbox"/> Live Birth	1. <input type="checkbox"/> Preterm Delivery
2. <input type="checkbox"/> Doctor Osteopathic/Chiropractor	2. <input type="checkbox"/> Vaginal Birth After C-Section	2. <input type="checkbox"/> Neonatal Death	2. <input type="checkbox"/> Breech
3. <input type="checkbox"/> Certified Nurse/Midwife	3. <input type="checkbox"/> C-Section-Primary	3. <input type="checkbox"/> Fetal Death	3. <input type="checkbox"/> Intrauterine Fetal Demise
4. <input type="checkbox"/> Registered Nurse/Physician Assistant	4. <input type="checkbox"/> C-Section-Repeat	4. <input type="checkbox"/> Spontaneous Abortion	4. <input type="checkbox"/> Other _____
5. <input type="checkbox"/> Other Midwife	5. <input type="checkbox"/> Unknown	5. <input type="checkbox"/> Therapeutic Abortion	
6. <input type="checkbox"/> Other			
7. <input type="checkbox"/> Unknown/Unattended			

**Client's
Child Care Skills**

1. Skilled
2. Lacks Skill
3. Unknown

**Client's
Child Care Interest**

1. Interested in Caring For Baby
2. Not Interested in Caring For Baby
3. Unknown

**Client's
Reaction To Birth**

1. Wants Child
2. Does not Want Child
3. Ambivalent
4. Other
5. Unknown

Concerns At Birth: _____

Infant Information

Infant Name: _____ Female Male

Birth Weight (lbs-oz/grams) _____

Length (in/cm) _____

APGAR Score (5 min) _____

Days Infant in Hospital _____

Days Infant in Neonatal ICU _____

Birth Defects

- | | |
|-----------------------------------|-------------------------------------|
| 1. <input type="checkbox"/> None | 3. <input type="checkbox"/> Major |
| 2. <input type="checkbox"/> Minor | 4. <input type="checkbox"/> Unknown |

Birth Defect Details: _____

Reason: _____

Reason: _____

Infant Discharged to:

- | | | | | |
|--|---|---|---|--|
| 1. <input type="checkbox"/> Natural Parents | 2. <input type="checkbox"/> Mother Only | 3. <input type="checkbox"/> Father Only | 4. <input type="checkbox"/> Foster Care | 5. <input type="checkbox"/> Grandparents |
| 6. <input type="checkbox"/> Other Family Memb. | 7. <input type="checkbox"/> Adoption | 8. <input type="checkbox"/> Unknown | 9. <input type="checkbox"/> CPS | |

Pediatric Care Provider

- | | |
|--|--|
| 1. <input type="checkbox"/> Physician/Medical Doctor | 3. <input type="checkbox"/> Other |
| 2. <input type="checkbox"/> Registered Nurse/Physician Assistant | 4. <input type="checkbox"/> Unknown/Unattended |

Assessment

Activity	Hearing	Bladder	Bowel	Skin Color	Vision
1. <input type="checkbox"/> Active/Alert	1. <input type="checkbox"/> Normal	1. <input type="checkbox"/> Normal	1. <input type="checkbox"/> Normal	1. <input type="checkbox"/> Normal	1. <input type="checkbox"/> Normal
2. <input type="checkbox"/> Irritable	2. <input type="checkbox"/> Abnormal	2. <input type="checkbox"/> Abnormal	2. <input type="checkbox"/> Abnormal	2. <input type="checkbox"/> Jaundice	2. <input type="checkbox"/> Abnormal
3. <input type="checkbox"/> Lethargic	3. <input type="checkbox"/> Unknown	3. <input type="checkbox"/> Unknown	3. <input type="checkbox"/> Unknown	3. <input type="checkbox"/> Cyanosis	3. <input type="checkbox"/> Unknown
4. <input type="checkbox"/> Unknown				4. <input type="checkbox"/> Unknown	

Assessed by: Mother Nurse Other

Local Case #: _____

BIH-MIS Case #: _____

Birth Outcome-Second Infant (Twin)

Pregnancy Outcome Date: ____ / ____ / ____ (Required)

Gestation Weeks: _____ Delivery Site: _____

Maternity Hospital Code: _____ Days Client in Hospital: _____ Reason: _____

Rehospitalization of Client Related to Birth-Days _____ Reason: _____

Delivery Attendant	Type of Delivery	Pregnancy Outcome	Delivery Complications
1. <input type="checkbox"/> Physician/Medical Doctor	1. <input type="checkbox"/> Vaginal	1. <input type="checkbox"/> Live Birth	1. <input type="checkbox"/> Preterm Delivery
2. <input type="checkbox"/> Doctor Osteopathic/Chiropractor	2. <input type="checkbox"/> Vaginal Birth After C-Section	2. <input type="checkbox"/> Neonatal Death	2. <input type="checkbox"/> Breech
3. <input type="checkbox"/> Certified Nurse/Midwife	3. <input type="checkbox"/> C-Section-Primary	3. <input type="checkbox"/> Fetal Death	3. <input type="checkbox"/> Intrauterine Fetal Demise
4. <input type="checkbox"/> Registered Nurse/Physician Assistant	4. <input type="checkbox"/> C-Section-Repeat	4. <input type="checkbox"/> Spontaneous Abortion	4. <input type="checkbox"/> Other _____
5. <input type="checkbox"/> Other Midwife	5. <input type="checkbox"/> Unknown	5. <input type="checkbox"/> Therapeutic Abortion	
6. <input type="checkbox"/> Other			
7. <input type="checkbox"/> Unknown/Unattended			

Client's Child Care Skills

1. Skilled
2. Lacks Skill
3. Unknown

Client's Child Care Interest

1. Interested in Caring For Baby
2. Not Interested in Caring For Baby
3. Unknown

Client's Reaction To Birth

1. Wants Child
2. Does not Want Child
3. Ambivalent
4. Other
5. Unknown

Concerns At Birth: _____

Infant Information

Infant Name: _____ Female Male

Birth Weight (lbs-oz/grams) _____

Length (in./cm) _____

APGAR Score (5 min) _____

Days Infant in Hospital _____

Days Infant in Neonatal ICU _____

Birth Defects

- | | |
|-----------------------------------|-------------------------------------|
| 1. <input type="checkbox"/> None | 3. <input type="checkbox"/> Major |
| 2. <input type="checkbox"/> Minor | 4. <input type="checkbox"/> Unknown |

Birth Defect Details: _____

Reason: _____

Reason: _____

Infant Discharged to:

- | | | | | |
|--|---|---|---|--|
| 1. <input type="checkbox"/> Natural Parents | 2. <input type="checkbox"/> Mother Only | 3. <input type="checkbox"/> Father Only | 4. <input type="checkbox"/> Foster Care | 5. <input type="checkbox"/> Grandparents |
| 6. <input type="checkbox"/> Other Family Memb. | 7. <input type="checkbox"/> Adoption | 8. <input type="checkbox"/> Unknown | 9. <input type="checkbox"/> CPS | |

Pediatric Care Provider

- | | |
|--|--|
| 1. <input type="checkbox"/> Physician/Medical Doctor | 3. <input type="checkbox"/> Other |
| 2. <input type="checkbox"/> Registered Nurse/Physician Assistant | 4. <input type="checkbox"/> Unknown/Unattended |

Assessment

Activity	Hearing	Bladder	Bowel	Skin Color	Vision
1. <input type="checkbox"/> Active/Alert	1. <input type="checkbox"/> Normal	1. <input type="checkbox"/> Normal	1. <input type="checkbox"/> Normal	1. <input type="checkbox"/> Normal	1. <input type="checkbox"/> Normal
2. <input type="checkbox"/> Irritable	2. <input type="checkbox"/> Abnormal	2. <input type="checkbox"/> Abnormal	2. <input type="checkbox"/> Abnormal	2. <input type="checkbox"/> Jaundice	2. <input type="checkbox"/> Abnormal
3. <input type="checkbox"/> Lethargic	3. <input type="checkbox"/> Unknown	3. <input type="checkbox"/> Unknown	3. <input type="checkbox"/> Unknown	3. <input type="checkbox"/> Cyanosis	3. <input type="checkbox"/> Unknown
4. <input type="checkbox"/> Unknown				4. <input type="checkbox"/> Unknown	

Assessed by: Mother Nurse Other

Local Case #: _____

BIH-MIS Case #: _____

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Birth Outcome-Third Infant (Triplet)

18

Pregnancy Outcome Date: _____ / _____ / _____ (Required)

Gestation Weeks: _____ Delivery Site: _____

Maternity Hospital Code: _____ Days Client in Hospital: _____ Reason: _____

Rehospitalization of Client Related to Birth-Days _____ Reason: _____

Delivery Attendant	Type of Delivery	Pregnancy Outcome	Delivery Complications
1. <input type="checkbox"/> Physician/Medical Doctor	1. <input type="checkbox"/> Vaginal	1. <input type="checkbox"/> Live Birth	1. <input type="checkbox"/> Preterm Delivery
2. <input type="checkbox"/> Doctor Osteopathic/Chiropractor	2. <input type="checkbox"/> Vaginal Birth After C-Section	2. <input type="checkbox"/> Neonatal Death	2. <input type="checkbox"/> Breech
3. <input type="checkbox"/> Certified Nurse/Midwife	3. <input type="checkbox"/> C-Section-Primary	3. <input type="checkbox"/> Fetal Death	3. <input type="checkbox"/> Intrauterine Fetal Demise
4. <input type="checkbox"/> Registered Nurse/Physician Assistant	4. <input type="checkbox"/> C-Section-Repeat	4. <input type="checkbox"/> Spontaneous Abortion	4. <input type="checkbox"/> Other _____
5. <input type="checkbox"/> Other Midwife	5. <input type="checkbox"/> Unknown	5. <input type="checkbox"/> Therapeutic Abortion	
6. <input type="checkbox"/> Other			
7. <input type="checkbox"/> Unknown/Unattended			

Client's

Child Care Skills

- 1. Skilled
- 2. Lacks Skill
- 3. Unknown

Client's

Child Care Interest

- 1. Interested in Caring For Baby
- 2. Not Interested in Caring For Baby
- 3. Unknown

Client's

Reaction To Birth

- 1. Wants Child
- 2. Does not Want Child
- 3. Ambivalent
- 4. Other
- 5. Unknown

Concerns At Birth: _____

Infant Information

Infant Name: _____ Female Male

Birth Weight (lbs-oz/grams) _____

Length (in./cm) _____

APGAR Score (5 min) _____

Days Infant in Hospital _____

Days Infant in Neonatal ICU _____

Birth Defects

- 1. None
- 2. Minor
- 3. Major
- 4. Unknown

Birth Defect Details: _____

Reason: _____

Reason: _____

Infant Discharged to:

- 1. Natural Parents
- 2. Mother Only
- 3. Father Only
- 4. Foster Care
- 5. Grandparents
- 6. Other Family Memb.
- 7. Adoption
- 8. Unknown
- 9. CPS

Pediatric Care Provider

- 1. Physician/Medical Doctor
- 2. Registered Nurse/Physician Assistant
- 3. Other
- 4. Unknown/Unattended

Assessment

Activity	Hearing	Bladder	Bowel	Skin Color	Vision
1. <input type="checkbox"/> Active/Alert	1. <input type="checkbox"/> Normal	1. <input type="checkbox"/> Normal	1. <input type="checkbox"/> Normal	1. <input type="checkbox"/> Normal	1. <input type="checkbox"/> Normal
2. <input type="checkbox"/> Irritable	2. <input type="checkbox"/> Abnormal	2. <input type="checkbox"/> Abnormal	2. <input type="checkbox"/> Abnormal	2. <input type="checkbox"/> Jaundice	2. <input type="checkbox"/> Abnormal
3. <input type="checkbox"/> Lethargic	3. <input type="checkbox"/> Unknown	3. <input type="checkbox"/> Unknown	3. <input type="checkbox"/> Unknown	3. <input type="checkbox"/> Cyanosis	3. <input type="checkbox"/> Unknown
4. <input type="checkbox"/> Unknown				4. <input type="checkbox"/> Unknown	

Assessed by: Mother Nurse Other

Local Case #: _____

BIH-MIS Case #: _____

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Well Baby Visits-First Infant

Infant Name: _____ Female Male

Date MM/DD/YY	Weight (lbs/oz)	Length (inches)	Age (months)	Head Circum.	Phys. Exam	Provider/Clinic	Father Attended
____/____/____	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
____/____/____	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
____/____/____	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
____/____/____	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
____/____/____	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
____/____/____	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
____/____/____	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
____/____/____	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
____/____/____	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
____/____/____	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
____/____/____	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
____/____/____	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes

Number of Well Baby Vists Attended with Infant:

Partner									Family									Friends								
1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9

Comments: _____

Immunizations

Polio

____/____/____
 ____/____/____
 ____/____/____
 ____/____/____
 ____/____/____

Age Appropriate
 Up-to-date

DTP

____/____/____
 ____/____/____
 ____/____/____
 ____/____/____
 ____/____/____

Age Appropriate
 Up-to-date

HIB

____/____/____
 ____/____/____
 ____/____/____
 ____/____/____

Age Appropriate
 Up-to-date

MMR

____/____/____
 ____/____/____

Age Appropriate
 Up-to-date

HEP B

____/____/____
 ____/____/____
 ____/____/____

Age Appropriate
 Up-to-date

**Varicella Zoster
(Chicken Pox)**

____/____/____

Age Appropriate
 Up-to-date

Local Case #: _____

BIH-MIS Case #: _____

Well Baby Visits-Second Infant (Twin)

Infant Name: _____ Female Male

Date MM/DD/YY	Weight (lbs/oz)	Length (inches)	Age (months)	Head Circum.	Phys. Exam	Provider/Clinic	Father Attended
____/____/____	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
____/____/____	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
____/____/____	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
____/____/____	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
____/____/____	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
____/____/____	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
____/____/____	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
____/____/____	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
____/____/____	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
____/____/____	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
____/____/____	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
____/____/____	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
____/____/____	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
____/____/____	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
____/____/____	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
____/____/____	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
____/____/____	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
____/____/____	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
____/____/____	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
____/____/____	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
____/____/____	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes

Number of Well Baby Vists Attended with Infant:

Partner	Family	Friends
1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9

Comments: _____

Immunizations

Polio	DTP	HIB	MMR
____/____/____	____/____/____	____/____/____	____/____/____
____/____/____	____/____/____	____/____/____	____/____/____
____/____/____	____/____/____	____/____/____	____/____/____
____/____/____	____/____/____	____/____/____	____/____/____
____/____/____	____/____/____	____/____/____	____/____/____

- | | | | |
|--|--|--|--|
| <input type="checkbox"/> Age Appropriate | <input type="checkbox"/> Age Appropriate | <input type="checkbox"/> Age Appropriate | <input type="checkbox"/> Age Appropriate |
| <input type="checkbox"/> Up-to-date | <input type="checkbox"/> Up-to-date | <input type="checkbox"/> Up-to-date | <input type="checkbox"/> Up-to-date |

HEP B	Varicella Zoster (Chicken Pox)
____/____/____	____/____/____
____/____/____	____/____/____
____/____/____	____/____/____
<input type="checkbox"/> Age Appropriate	<input type="checkbox"/> Age Appropriate
<input type="checkbox"/> Up-to-date	<input type="checkbox"/> Up-to-date

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Well Baby Visits-Third Infant (Triplet)

Infant Name: _____

Female Male

Date MM/DD/YY	Weight (lbs/oz)	Length (inches)	Age (months)	Head Circum.	Phys. Exam	Provider/Clinic	Father Attended
___/___/___	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
___/___/___	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
___/___/___	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
___/___/___	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
___/___/___	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
___/___/___	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
___/___/___	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
___/___/___	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
___/___/___	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
___/___/___	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
___/___/___	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
___/___/___	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
___/___/___	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
___/___/___	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes
___/___/___	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> Yes

Number of Well Baby Vists Attended with Infant:

Partner	Family	Friends
1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9

Comments: _____

Immunizations

Polio

___/___/___
___/___/___
___/___/___
___/___/___
___/___/___

Age Appropriate
 Up-to-date

DTP

___/___/___
___/___/___
___/___/___
___/___/___
___/___/___

Age Appropriate
 Up-to-date

HIB

___/___/___
___/___/___
___/___/___

Age Appropriate
 Up-to-date

MMR

___/___/___
___/___/___

Age Appropriate
 Up-to-date

HEP B

___/___/___
___/___/___
___/___/___

Age Appropriate
 Up-to-date

**Varicella Zoster
(Chicken Pox)**

___/___/___

Age Appropriate
 Up-to-date

Local Case #: _____

BIH-MIS Case #: _____

Contraceptive use from delivery to 6 months post partum:

- 1. Never
- 2. Sometimes
- 3. Always
- 4. Not sexually active-no partner
- 5. Not sexually active-has partner but is abstaining
- 6. Not applicable (client pregnant)
- 7. Unknown

Birth control method use from delivery to 6 months post partum

- 1. None
- 2. Birth Control Pills
- 3. Condoms
- 4. Depo-Provera
- 5. Diaphragm/Cap
- 6. Foam
- 7. IUD-Intrauterine Device
- 8. Norplant
- 9. Rhythm/Natural
- 10. Tubal Ligation
- 11. Vasectomy
- 12. Withdrawal
- 13. Unknown

Has client received treatment for a chronic health problem from delivery to 6 months post partum?

- 1. No, client has no health problems.
- 2. No, client has health problems but has not received treatment.
- 3. Yes, client has received treatment.
- 4. Unknown

Has client received treatment for an acute health problem since delivery to 6 months post partum?

- 1. No, client has no health problems.
- 2. No, client has health problems, but has not received treatment.
- 3. Yes, client has received treatment.
- 4. Unknown

Has client reported being hit, slapped, kicked or punched from delivery to 6 months post partum?

- 1. Yes
- 2. No
- 3. Unknown

Has client reported any verbal or psychological abuse from delivery to 6 months post partum?

- 1. Yes
- 2. No
- 3. Unknown

Date: ___/___/___ (Required) **Infant Follow-Up Birth to 6 Months**

Developmental Milestones 5-7 Months:

- Laughs out loud without being tickled or touched. Yes No
- Plays with hands by touching them together. Yes No
- Holds head upright and steady. Yes No
- Lifts chest using arms for support. Yes No
- Rolls over, from stomach to back or vice versa. Yes No

Has infant had an acute medical problem from birth to 6 months?

- 1. No, no acute medical problem
- 2. No, has medical problem, but no treatment.
- 3. Yes, treatment received.
- 4. Unknown

Has infant been diagnosed with a chronic medical condition from birth to 6 months?

- 1. Yes
- 2. No
- 3. Unknown

Abuse/Neglect Report from birth to 6 months:

- 1. Yes, initial complaint
- 2. Yes, subsequent complaint
- 3. No
- 4. Unknown

Number of hospitalizations from birth to 6 months:

- 1. None
- 2. # _____
- 3. Unknown

Number of ER Visits from birth to 6 months:

- 1. None
- 2. # _____
- 3. Unknown

Breastfeeding

Frequency:

- 1. Every Hour
- 2. Every Two Hours
- 3. Every Three Hours
- 4. On Demand
- 5. Other
- 6. Unknown

Length of Breastfeeding

- 1. No Breastfeeding
- 2. Less than 1 week
- 3. Between 1-6 weeks
- 4. Between 6-16 weeks
- 5. Between 4-6 months
- 6. Unknown

Bottle Feeding

Frequency:

- 1. Every Hour
- 2. Every Two Hours
- 3. Every Three Hours
- 4. On Demand
- 5. Unknown

Amount _____ ml/ _____ oz
Type: _____

Supplemented: Yes No

Local Case #: _____

BIH-MIS Case #: _____

23 Mother Follow-Up 7 to 12 months Post Partum Date: ___/___/___ (Required)

<p>Contraceptive use from 7 to 12 months post partum:</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> Never 2. <input type="checkbox"/> Sometimes 3. <input type="checkbox"/> Always 4. <input type="checkbox"/> Not sexually active-no partner 5. <input type="checkbox"/> Not sexually active-has partner but is abstaining 6. <input type="checkbox"/> Not applicable (client pregnant) 7. <input type="checkbox"/> Unknown <p>Birth control method use from 7 to 12 months post partum:</p> <p><input type="checkbox"/> None</p> <p><input type="checkbox"/> Birth Control Pills</p> <p><input type="checkbox"/> Condoms</p> <p><input type="checkbox"/> Depo-Provera</p> <p><input type="checkbox"/> Diaphragm/Cap</p> <p><input type="checkbox"/> Foam</p> <p><input type="checkbox"/> IUD-Intrauterine Device</p> <p><input type="checkbox"/> Norplant</p> <p><input type="checkbox"/> Rhythm/Natural</p> <p><input type="checkbox"/> Tubal Ligation</p> <p><input type="checkbox"/> Vasectomy</p> <p><input type="checkbox"/> Withdrawal</p> <p><input type="checkbox"/> Unknown</p>	<p>Has client received treatment for a chronic health problem from 7 to 12 months post partum?</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> No, client has no health problems. 2. <input type="checkbox"/> No, client has health problems but has not received treatment. 3. <input type="checkbox"/> Yes, client has received treatment. 4. <input type="checkbox"/> Unknown <p>Has client received treatment for an acute health problem since 7 to 12 months post partum?</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> No, client has no health problems. 2. <input type="checkbox"/> No, client has health problems, but has not received treatment. 3. <input type="checkbox"/> Yes, client has received treatment. 4. <input type="checkbox"/> Unknown <p>Has client reported being hit, slapped, kicked or punched from 7 to 12 months post partum?</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No 3. <input type="checkbox"/> Unknown <p>Has client reported any verbal or psychological abuse from 7 to 12 months post partum?</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No 3. <input type="checkbox"/> Unknown
--	--

Infant Follow-Up 7 to 12 Months Date: ___/___/___ (Required)

<p>Developmental Milestones 11 to 13 Months:</p> <p>Feeds herself/himself a cookie or cracker <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Tries to reach for toy that is out of reach by stretching arm or body. <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Stands up by holding on to a chair or table for thirty seconds or more <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Pulls to a standing position without help. <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Makes ma-ma or da-da sounds. <input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Has infant had an acute medical problem from 7 to 12 months?</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> No, no acute medical problem 2. <input type="checkbox"/> No, has medical problem, but no treatment. 3. <input type="checkbox"/> Yes, treatment received. 4. <input type="checkbox"/> Unknown 		
<p>Has infant been diagnosed with a chronic medical condition from 7 to 12 months?</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No 3. <input type="checkbox"/> Unknown 	<p>Abuse/Neglect Report from 7 to 12 months:</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> Yes, initial complaint 2. <input type="checkbox"/> Yes, subsequent complaint 3. <input type="checkbox"/> No 4. <input type="checkbox"/> Unknown 	<p>Number of hospitalizations from 7 to 12 months:</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> None 2. <input type="checkbox"/> # _____ 3. <input type="checkbox"/> Unknown 	<p>Number of ER Visits from 7 to 12 months:</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> None 2. <input type="checkbox"/> # _____ 3. <input type="checkbox"/> Unknown
<p>Breastfeeding Frequency:</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> Every Hour 2. <input type="checkbox"/> Every Two Hours 3. <input type="checkbox"/> Every Three Hours 4. <input type="checkbox"/> On Demand 5. <input type="checkbox"/> Other 6. <input type="checkbox"/> Unknown <p>Supplemented: <input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Length of Breastfeeding</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> No Breastfeeding 2. <input type="checkbox"/> Less than 1 week 3. <input type="checkbox"/> Between 1-6 weeks 4. <input type="checkbox"/> Between 6-16 weeks 5. <input type="checkbox"/> Between 4-6 months 6. <input type="checkbox"/> Between 7-12 months 7. <input type="checkbox"/> Unknown 	<p>Bottle Feeding Frequency:</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> Every Hour 2. <input type="checkbox"/> Every Two Hours 3. <input type="checkbox"/> Every Three Hours 4. <input type="checkbox"/> On Demand 5. <input type="checkbox"/> Unknown <p>Amount _____ ml/ _____ oz</p> <p>Type: _____</p>	

Local Case #: _____

BIH-MIS Case #: _____

<p>Contraceptive use from 13 to 18 months post partum:</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> Never 2. <input type="checkbox"/> Sometimes 3. <input type="checkbox"/> Always 4. <input type="checkbox"/> Not sexually active-no partner 5. <input type="checkbox"/> Not sexually active-has partner but is abstaining 6. <input type="checkbox"/> Not applicable (client pregnant) 7. <input type="checkbox"/> Unknown <p>Birth control method use from 13 to 18 months post partum</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> None 2. <input type="checkbox"/> Birth Control Pills 3. <input type="checkbox"/> Condoms 4. <input type="checkbox"/> Depo-Provera 5. <input type="checkbox"/> Diaphragm/Cap 6. <input type="checkbox"/> Foam 7. <input type="checkbox"/> IUD-Intrauterine Device 8. <input type="checkbox"/> Norplant 9. <input type="checkbox"/> Rhythm/Natural 10. <input type="checkbox"/> Tubal Ligation 11. <input type="checkbox"/> Vasectomy 12. <input type="checkbox"/> Withdrawal 13. <input type="checkbox"/> Unknown 	<p>Has client received treatment for a chronic health problem from 13 to 18 months post partum?</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> No, client has no health problems. 2. <input type="checkbox"/> No, client has health problems but has not received treatment. 3. <input type="checkbox"/> Yes, client has received treatment. 4. <input type="checkbox"/> Unknown <p>Has client received treatment for an acute health problem since 13 to 18 months post partum?</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> No, client has no health problems. 2. <input type="checkbox"/> No, client has health problems, but has not received treatment. 3. <input type="checkbox"/> Yes, client has received treatment. 4. <input type="checkbox"/> Unknown <p>Has client reported being hit, slapped, kicked or punched from 13 to 18 months post partum?</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No 3. <input type="checkbox"/> Unknown <p>Has client reported any verbal or psychological abuse from 13 to 18 months post partum?</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No 3. <input type="checkbox"/> Unknown
---	--

Date: ___/___/___ (Required) **Infant Follow-Up 13 to 18 Months**

<p>Developmental Milestones 13 to 18 Months:</p> <p>Able to tell you from strangers. <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Walks alone or holding on to furniture. <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Without help, plays "pat-a-cake" or waves "bye-bye". <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Has infant been diagnosed with a chronic medical condition from 13 to 18 months?</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No 3. <input type="checkbox"/> Unknown <p>Breastfeeding Frequency:</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> Every Hour 2. <input type="checkbox"/> Every Two Hours 3. <input type="checkbox"/> Every Three Hours 4. <input type="checkbox"/> On Demand 5. <input type="checkbox"/> Other 6. <input type="checkbox"/> Unknown <p>Supplemented: <input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Abuse/Neglect Report from 13 to 18 months:</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> Yes, initial complaint 2. <input type="checkbox"/> Yes, subsequent complaint 3. <input type="checkbox"/> No 4. <input type="checkbox"/> Unknown <p>Length of Breastfeeding</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> No Breastfeeding 2. <input type="checkbox"/> Less than 1 week 3. <input type="checkbox"/> Between 1-6 weeks 4. <input type="checkbox"/> Between 6-16 weeks 5. <input type="checkbox"/> Between 4-6 months 6. <input type="checkbox"/> Between 7-12 months 7. <input type="checkbox"/> between 13-18 months 8. <input type="checkbox"/> Unknown <p>Bottle Feeding Frequency:</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> Every Hour 2. <input type="checkbox"/> Every Two Hours 3. <input type="checkbox"/> Every Three Hours 4. <input type="checkbox"/> On Demand 5. <input type="checkbox"/> Unknown <p>Amount _____ ml/ _____ oz Type: _____</p>
<p>Has infant had an acute medical problem from 13 to 18 months?</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> No, no acute medical problem 2. <input type="checkbox"/> No, has medical problem, but no treatment. 3. <input type="checkbox"/> Yes, treatment received. 4. <input type="checkbox"/> Unknown <p>Number of hospitalizations from 13 to 18 months:</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> None 2. <input type="checkbox"/> # _____ 3. <input type="checkbox"/> Unknown <p>Number of ER Visits from 13 to 18 months:</p> <ol style="list-style-type: none"> 1. <input type="checkbox"/> None 2. <input type="checkbox"/> # _____ 3. <input type="checkbox"/> Unknown 	

Local Case #: _____

BIH-MIS Case #: _____

25 Mother Follow-Up 19 to 24 months Post Partum Date: ____/____/____ (Required)

Contraceptive use from 19 to 24 months post partum:

1. Never
2. Sometimes
3. Always
4. Not sexually active-no partner
5. Not sexually active-has partner but is abstaining
6. Not applicable (client pregnant)
7. Unknown

Birth control method use from 19 to 24 months post partum

1. None
2. Birth Control Pills
3. Condoms
4. Depo-Provera
5. Diaphragm/Cap
6. Foam
7. IUD-Intrauterine Device
8. Norplant
9. Rhythm/Natural
10. Tubal Ligation
11. Vasectomy
12. Withdrawal
13. Unknown

Has client received treatment for a chronic health problem from 19 to 24 months post partum?

1. No, client has no health problems.
2. No, client has health problems but has not received treatment.
3. Yes, client has received treatment.
4. Unknown

Has client received treatment for an acute health problem since 19 to 24 months post partum?

1. No, client has no health problems.
2. No, client has health problems, but has not received treatment.
3. Yes, client has received treatment.
4. Unknown

Has client reported being hit, slapped, kicked or punched from 19 to 24 months post partum?

1. Yes
2. No
3. Unknown

Has client reported any verbal or psychological abuse from 19 to 24 months post partum?

1. Yes
2. No
3. Unknown

Infant Follow-Up 19 to 24 Months Date: ____/____/____ (Required)

Developmental Milestones 19 to 24 Months:

- Able to walk all the way across a large room without falling. Yes No
- Indicates what s/he wants without crying or whining. Yes No
- Can hold a regular cup or glass by himself/herself and drink from it without spilling. Yes No

Has infant had an acute medical problem from 19 to 24 months?

1. No, no acute medical problem
2. No, has medical problem, but no treatment.
3. Yes, treatment received.
4. Unknown

Has infant been diagnosed with a chronic medical condition from 19 to 24 months?

1. Yes
2. No
3. Unknown

Abuse/Neglect Report from 19 to 24 months:

1. Yes, initial complaint
2. Yes, subsequent complaint
3. No
4. Unknown

Number of hospitalizations from 19 to 24 months:

1. None
2. # _____
3. Unknown

Number of ER Visits from 19 to 24 months:

1. None
2. # _____
3. Unknown

Breastfeeding

Frequency:

1. Every Hour
2. Every Two Hours
3. Every Three Hours
4. On Demand
5. Other
6. Unknown

Supplemented:

- Yes No

Length of Breastfeeding

1. No Breastfeeding
2. Less than 1 week
3. Between 1-6 weeks
4. Between 6-16 weeks
5. Between 4-6 months
6. Between 7-12 months
7. Between 13-18 months
8. Between 19-24 months
9. Unknown

Bottle Feeding

Frequency:

1. Every Hour
2. Every Two Hours
3. Every Three Hours
4. On Demand
5. Unknown

Amount _____ ml/ _____ oz
Type: _____

Local Case #: _____

BIH-MIS Case #: _____

6/30/98 P 25

Intervention Steps

	Dates:		Dates:
	MM/DD/YY		MM/DD/YY
1. Intake	___/___/___	6. Visit Schedule Established	___/___/___
2. Initial Visit	___/___/___	7. Tracking Started	___/___/___
3. Assessment	___/___/___	8. Exit Reassessment	___/___/___
4. Goal Setting	___/___/___		
5. Care Plan	___/___/___		

Assessment **Entry** **22-26 Weeks Gestation**
Creasy Scale Score _____ _____

Comprehensive Case Management Supplemental Assessment **Completed**

Other Comments & Observations:

Local Case #: _____

BIH-MIS Case #: _____

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BIH Entry Information

BIH Entry: ____/____/____ (Required for enrolled Clients) Re-Entry Date: ____/____/____

Primary Case Manager: _____

BIH Closing Information

BIH Closing Date: ____/____/____

Reason:

- 1. Service Completed
- 2. Client Voluntarily Exited
- 3. No Longer Eligible
- 4. Moved-No Transfer To Another BIH H.J.
- 5. Moved-Transfer To Another BIH H.J.
- 6. Unable To Locate/Unresponsive
- 7. Death-Index Child
- 8. Death-Client
- 9. Other

Things To Do

	Date
1. _____	____/____/____
2. _____	____/____/____
3. _____	____/____/____
4. _____	____/____/____
5. _____	____/____/____
6. _____	____/____/____
7. _____	____/____/____
8. _____	____/____/____

Type of BIH Contact (Circle)

Home Visits: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

Office Visits: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

Phone Calls: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

Field Visits: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

Positive Reinforcement Words & Statements

Local Case #: _____

BIH-MIS Case #: _____

**Case Management
Intervention/Problem Outcome**

Outcome Codes

- 1-Resolved
- 2-No change
- 3-Improved but not resolved
- 4-Condition worse
- 5-Recurrent
- 6- N/A
- 7-New problem at closure

- Directions:**
- ◆ Write intervention code # in problem box. Problems are derived from the Comprehensive Assessment.
 - ◆ Enter numerical Outcome Code in the Outcome at Closure box.
 - ◆ New problem or intervention at final assessment is any problem or intervention identified after the initial assessment.
 - ◆ Enter only the primary numerical intervention code.

LANGUAGE PROBLEMS	Outcome at Closure	LANGUAGE INTERVENTION CODES			
Non-English speaking		101 Appropriate language/materials	Not taking prenatal vitamins as ordered		214 Educate how to access/utilize the system/services
		102 Referral	Postpartum issues		215 Return demonstration
		199 Other	Not keeping appointments		216 Specialty care referral
					217 Encourage MD follow-up
					299 Other
			Short interval pregnancy		
PERINATAL PROBLEMS	Outcome at Closure	PERINATAL INTERVENTION CODES			
Unresolved perinatal issues		201 Perinatal assessment/education	NUTRITION PROBLEMS	Outcome at Closure	NUTRITION INTERVENTION CODES
Medical problems		202 Health promotion	Inadequate/non-nutritional food		301 Discuss appropriate rate of weight gain
No contraceptive plan		203 Disease process monitoring/education	Inadequate facilities/equipment for food storage or preparation		302 Discuss nutrition strength/risks
Improper use or problems with chosen birth control method		204 WIC referral/follow-up	Problems following special diet		303 WIC referral/follow-up
Accessing/barriers to health care		205 Routine care referral	Food/beverage intolerance		304 Educate/counsel regarding perinatal dietary needs
Inadequate knowledge of perinatal care		206 Develop bureaucracy management strategies	Lack of breast feeding knowledge		305 Ongoing assessment/encouragement to meet RDA
Parents don't know teen is pregnant		207 MSW referral	Feeding method undecided		306 Instruction on infant feeding problem
No/inadequate exercise		208 Encourage/support verbalization of feelings/concerns	Lack of knowledge of perinatal dietary needs		307 Encourage/support breast feeding
Using potentially harmful home remedies		209 Encourage health care	Weight gain problem/weight loss		308 Food referral
Care safety restraints not used		210 Facilitate client's informed decision	Excessive amounts of caffeinated beverages		399 Other
		211 Medication monitoring/education			
		212 Loss/grief counseling			
		213 Provide info on reporting to health care provider			

Local Case #: _____

BH-MIS Case #: _____

P28

EMPLOYMENT PROBLEMS	Outcome at Closure	EDUCATION/EMPLOYMENT INTERVENTION CODES	Living with other/lacks own housing		503 Explore reasons for frequent moves
Unemployed		401 Support/encouragement	Children removed from home		504 Assist client through family reunification process
Limited finances		402 Provide information on re-entry programs	Children living with other family member(s) or friend		505
Inadequate medical coverage		403 Client appropriate/creative teaching methods	Homeless		506 Ed. re. safety/health risks assoc. with over crowded living conditions
Problems with AFDC/Medi-Cal/Welfare		404 Skill building tutorial assistance	Emergency shelter		507 Encourage/support verbalization of feelings/concern
Not a high school graduate		405 On-campus counseling	Inadequate housing		508 Housing referral
Special learning problems		406 Self-improvement contract	Overcrowded living conditions		509 Environmental health referral
Illiterate		407 On job safety precautions			510 Women's shelter
Poor school attendance		408 Assess eligibility and connect with appropriate resources			599 Other
Poor academic performance		409 Assist with Medi-Cal application			
Not in school		410 Provide low income housing information			
No clear goals for the future		411 Assist client to maximize spending power of available finances			
No child care		412 Food referral			
		413 Provide information/assistance in finding child care			
		414 Refer to career counseling			
		415 Refer reentry program			
		416 Housing referral			
		499 Other			
CURRENT LIVING CONDITIONS PROBLEMS	Outcome at Closure	CURRENT LIVING CONDITIONS INTERVENTION CODES	SUPPORT SYSTEM PROBLEMS	Outcome at Closure	SUPPORT SYSTEM INTERVENTION CODES
Moves frequently		501 Information/assistance with housing needs	Unstable relationship with father of baby		601 Link with support group/mentor
Client doesn't feel safe		502 Home/neighborhood safety instruction	Limited or no emotional support		602 MSW referral
			Other children are unprepared for upcoming birth		603 Assist client to define actual support system
			High level conflict in support systems		604 Referral for relationship/personal/family counseling
			Low level of reciprocity		605 Support and encourage verbalization of concern/feelings
					606 Teach problem solving techniques
					607 Conflict resolution
					699 Other
			EMOTIONAL STATUS PROBLEMS	Outcome at Closure	EMOTIONAL STATUS INTERVENTION CODES
			High stress level		701 Support/encourage verbalization of feelings

Local Case #: _____

BIH-MIS Case #: _____

EMOTIONAL STATUS PROBLEMS (Continued)	Outcome at Closure	EMOTIONAL STATUS INTERVENTION CODES (Continued)			
Emotional problems		702 Provide information/referral to support groups	Drug use		904 Encourage client to eliminate/reduce use
Unresolved psychiatric problems/issues		703 Counseling	Improper use OTC/prescription drugs		905 Support client in decision to quit/reduce use
History of abuse: physical, sexual, psychological		704 File abuse reports			906 Encourage client to seek treatment
Children with history of violence or sexual abuse		705 MSW referral			907 Review/instruct regarding proper use of OTC/prescription drugs
Not comfortable with parenting role		706 Parenting education			908 Link with mentor
		707 Facilitate change as appropriate			909 Ed. re. recovery process
		708 Referral to parent education group			999 Other
		799 Other			
TRANSPORTATION PROBLEMS	Outcome at Closure	TRANSPORTATION INTERVENTION CODES	WELL WOMAN PROBLEMS	Outcome at Closure	WELL WOMAN INTERVENTION CODES
Transportation problems		801 Assist client in identifying transportation resources	Declines/problems incorporating the health maintenance schedule into her personal routine		1001 Preventive health education
		802 Transport client	Lacks adequate preventive health information		1002 Follow-up preventive health implementation plan
		803 Provide bus tokens			1003 Support client in her choices
		804 Teach how to utilize bus system			1004 Disease process monitoring/education
		805 Wean from project provided transportation			1005 Assessment/education
		899 Other			1099 Other
SUBSTANCE ABUSE PROBLEMS	Outcome at Closure	SUBSTANCE ABUSE INTERVENTION CODES	INFANT PROBLEMS	Outcome at Closure	INFANT INTERVENTION CODES
Smoker		901 Smoking referral	High risk health condition		1101 Preventive health education
Alcohol use		902 Alcohol and drugs referral	Contraindication to immunizations		1102 Disease process monitoring/education
		903 Instruct regarding effect of alcohol, tobacco, drugs & caffeine on mother & fetus	Acute episodic health problem		1103 Encourage health care provider follow-up
			Recurrent episodic health problem		1104
					1105 Administer immunizations

Local Case #: _____

BIH-MIS Case #: _____

CPS reportable situation		1106 Anticipatory guidance 1107 MSW referral 1108 CPS referral	SELF-ESTEEM PROBLEMS	Outcome at Closure	SELF-ESTEEM INTERVENTION CODES
Immunizations not current		1109 Provide information/assist in finding child care	Low self-esteem		1301 Promote ego integrity 1302 Acknowledge client successes
No child care		1110 Assessment/education 1111 Routine care referral	PHN assessed low self-esteem		1303 Serve as a role model 1399 Other
Safety concerns		1112 Speciality care referral 1199 Other	COPING MECHANISM PROBLEMS	Outcome at Closure	COPING MECHANISM INTERVENTION CODES
			Over reliance on escape/delay action		1401 Encourage/support verbalization of feelings/concerns
			Use of smoking & substances to cope		1402 Assist client to define/solve problem
STRENGTHS PROBLEMS	Outcome at Closure	STRENGTHS INTERVENTION CODES	Overeating		1403 Assist client in identifying past useful coping mechanisms
Client unable to identify/acknowledge own strengths		1201 Maintenance/support of strengths	Not eating/anorexia		1404 Facilitate change as appropriate
		1202 Assist client in identification of own strengths			1405 Counsel/educate regarding styles
		1299 Other			1499 Other

STRENGTHS - Client Identified _____

STRENGTHS - Staff Identified _____

Assessments	Date
Initial _____	_____
Final _____	_____

Client's Name _____ PHN Signature _____

ID# _____

Intervention Milestones	Dates:	
	MM/DD/YY	
1. Screening Intake	____/____/____	
2. Assessment	Entry	Post Partum
A. Self-Efficacy Scale	____/____/____	____/____/____
Scores	_____	_____
B. Readiness	____/____/____	____/____/____
Scores	_____	_____
C. Goal Setting	____/____/____	____/____/____
3. Intervention Plan	Date Started	# of Occurrences
A. Mastery Experience/Reinforcement	____/____/____	_____
B. Verbal Pers/Reinforcement	____/____/____	_____
C. Physio. Resp/Reinforcement	____/____/____	_____
D. Role Modeling/Reinforcement	____/____/____	_____
4. Reassessment at Exit	____/____/____	

Problem Behavior Identification					
Scoring: (Perception)	0 = Not A Problem		2 = Moderate Problem		
	1 = Minimum Problem		3 = Severe Problem		
	Entry		Exit		# of times Behavior Addressed
	Client's Perception	Provider's Perception	Client's Perception	Provider's Perception	
1. Drug Use	_____	_____	_____	_____	_____
2. Alcohol Use	_____	_____	_____	_____	_____
3. Smoking	_____	_____	_____	_____	_____
4. No PNC	_____	_____	_____	_____	_____
5. Inconsistent PNC	_____	_____	_____	_____	_____
6. Inadequate nutrition	_____	_____	_____	_____	_____
7. Not obtaining early health care with PTL	_____	_____	_____	_____	_____
8. Poor compliance taking PN vitamins/supplements	_____	_____	_____	_____	_____
9. Inadequate Exercise	_____	_____	_____	_____	_____
10. Inadequate Rest	_____	_____	_____	_____	_____

Local Case #: _____

BIH-MIS Case #: _____

BIH Entry Information

BIH Entry: ____/____/____ (Required for enrolled Clients) Re-Entry Date: ____/____/____

Primary Case Manager: _____

BIH Closing Information

BIH Closing Date: ____/____/____

Reason:

- | | |
|---|---|
| 1. <input type="checkbox"/> Service Completed | 6. <input type="checkbox"/> Unable To Locate/Unresponsive |
| 2. <input type="checkbox"/> Client Voluntarily Exited | 7. <input type="checkbox"/> Death-Index Child |
| 3. <input type="checkbox"/> No Longer Eligible | 8. <input type="checkbox"/> Death-Client |
| 4. <input type="checkbox"/> Moved-No Transfer To Another BIH H.J. | 9. <input type="checkbox"/> Other |
| 5. <input type="checkbox"/> Moved-Transfer To Another BIH H.J. | |

Things To Do

	Date
1. _____	____/____/____
2. _____	____/____/____
3. _____	____/____/____
4. _____	____/____/____
5. _____	____/____/____
6. _____	____/____/____
7. _____	____/____/____
8. _____	____/____/____

Type of BIH Contact (Circle)Home Visits: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50Office Visits: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50Phone Calls: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50Field Visits: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50**Positive Reinforcement Words & Statements**

Local Case #: _____

BIH-MIS Case #: _____

Intervention Steps

Dates:
MM/DD/YY

- | | |
|--------------------------------------|----------------|
| 1. Screening/Intake | ____/____/____ |
| 2. Assessment | ____/____/____ |
| 3. Support Group Sessions | |
| a. Getting started | ____/____/____ |
| b. Culture & self-awareness | ____/____/____ |
| c. Self-acceptance & self-expression | ____/____/____ |
| d. Self-respect | ____/____/____ |
| e. S.S.E. in pregnancy | ____/____/____ |
| f. S.S.E. in parenting | ____/____/____ |
| g. Self-esteem/empowerment in action | ____/____/____ |
| h. Graduation | ____/____/____ |

Additional/Optional Sessions

- | | |
|--|----------------|
| | ____/____/____ |
| | ____/____/____ |
| | ____/____/____ |

Total Sessions Attended

- | | |
|--------------------------------|----------------|
| 4. Reassessment at Exit | ____/____/____ |
|--------------------------------|----------------|

Observational Assessment

Scoring:

- 5. Excellent - Highest - Most Positive
- 4. Good
- 3. Average
- 2. Marginal
- 1. Poor - None - Negative - Inappropriate

CFSEI-2	Entry	Exit
1. General	_____	_____
2. Social	_____	_____
3. Personal	_____	_____
Total	_____	_____
4. Defensiveness	_____	_____

	Entry	Exit
a) Appearance	_____	_____
b) Dress	_____	_____
c) Communication	_____	_____
d) Helping Behaviors	_____	_____
e) Understanding Goals & Objectives	_____	_____
Total Score	_____	_____

Local Case #: _____

BIH-MIS Case #: _____

35 Client's Overview-Social Support & Empowerment

BIH Entry Information

BIH Entry: ____/____/____ (Required for enrolled Clients) Re-Entry Date: ____/____/____

Primary Case Manager: _____

BIH Closing Information

BIH Closing Date: ____/____/____

Reason:

- | | |
|---|---|
| 1. <input type="checkbox"/> Service Completed | 6. <input type="checkbox"/> Unable To Locate/Unresponsive |
| 2. <input type="checkbox"/> Client Voluntarily Exited | 7. <input type="checkbox"/> Death-Index Child |
| 3. <input type="checkbox"/> No Longer Eligible | 8. <input type="checkbox"/> Death-Client |
| 4. <input type="checkbox"/> Moved-No Transfer To Another BIH H.J. | 9. <input type="checkbox"/> Other |
| 5. <input type="checkbox"/> Moved-Transfer To Another BIH H.J. | |

Things To Do

	Date
1. _____	____/____/____
2. _____	____/____/____
3. _____	____/____/____
4. _____	____/____/____
5. _____	____/____/____
6. _____	____/____/____
7. _____	____/____/____
8. _____	____/____/____

Type of BIH Contact (Circle)

Home Visits: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

Office Visits: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

Phone Calls: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

Field Visits: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

Positive Reinforcement Words & Statements

Local Case #: _____

BIH-MIS Case #: _____

6/30/98 P 35

APPENDIX B

Definition of Variables and Codebook

DATA DEFINITIONS AND CODEBOOK

Data Element	Definition	Data Form Page
<p>Client Age</p> <p>1 < 18 2 18-24 3 25-29 4 30-34 5 ≥ 35 6 Missing</p>	<p>Client's age reported or calculated by date of birth. Information recorded in client's demographics data form.</p> <p>Less than 18 years old 18 to 24 years old 25 to 29 years old 30 to 34 years old 35 years old or older Data element unknown or missing</p>	P 4
<p>Marital Status</p> <p>1 Married 2 Single 3 Div/Sep/Wid 4 Missing</p>	<p>Client's marital status recorded in client's demographics data form.</p> <p>Married to either the father of the baby or other than the FOB Single Divorced, widowed or separated Data element unknown or missing</p>	P 4
<p>Employment Status</p> <p>1 Not employed 2 Part time 3 Full time 4 Missing</p>	<p>Client's employment status recorded in client's demographics data form.</p> <p>Not employed or volunteer Part time or seasonal employment Full time employment Data element unknown or missing</p>	P 4
<p>Education</p> <p>1 <HS 2 HS graduate 3 Vocational 4 College 5 Missing</p>	<p>Client's educational status recorded in client's demographics data form.</p> <p>No education at all, attendance at elementary school, middle/junior high school and some high school attendance without graduating High school attendance with graduation Any vocational training Any college attendance/no degree, associate degree, bachelor's degree, master's degree or higher Data element missing or unknown</p>	P 4

<p>Income</p> <p>1 Employment 2 Unemployment Insurance 3 Partner 4 AFDC 5 Other 6 None</p>	<p>Client's income source was recorded in client's demographics data form. Employment reported as source of income Unemployment Insurance reported as source of income Partner reported as source of income Governmental Assistance, Aid to Families with Dependent Children, reported as source of income Any other source of income reported Client reported having no source of income</p>	<p>P 4</p>
<p>Size of Social Network</p> <p>1 None 2 1-2 support 3 3-4 support 4 >4 support 5 Missing</p>	<p>Number of social support sources reported by client and recorded in psychosocial factors data form. They include baby's father, client's mother, client's father, grandparents, sister, brother, other relative, friend, church member, community member, community agency, psychiatrist, and/or substance abuse counselor. Client reported having no sources of social support One to two sources reported Three to four sources reported More than four sources reported Data element missing or unknown</p>	<p>P 8</p>
<p>Client Supported by the Father of the Baby</p> <p>1 Yes 2 No</p>	<p>Father of the baby listed as source of support and recorded in the psychosocial factors data form. Father listed as source of support Father not listed as source of support</p>	<p>P 8</p>
<p>Client Supported by Client's Mother</p> <p>1 Yes 2 No</p>	<p>Client's mother listed as source of support and recorded in psychosocial factors data form. Client's mother listed as source of support Client's mother not listed as source of support</p>	<p>P 8</p>

<p>Cigarette Use in Pregnancy</p> <p>1 No 2 Quit 1st or 2nd 3 Smokes or suspected 4 Missing</p>	<p>Client's use of cigarette in pregnancy recorded in current pregnancy data form. Never used or stopped before conception Quit during first or second trimester of pregnancy Continued smoking or resumed during pregnancy and use denied but suspected Data element missing or unknown</p>	P 7-2
<p>Alcohol Use in Pregnancy</p> <p>1 No 2 Quit 1st or 2nd 3 Drinks or suspected 4 Missing</p>	<p>Client's use of alcohol in pregnancy recorded in current pregnancy data form. Never used or stopped before conception Quit during first or second third trimester of pregnancy Continued drinking or resumed during pregnancy and use denied but suspected Data element missing or unknown</p>	P 7-2
<p>Drug use in Pregnancy</p> <p>1 No 2 Yes or suspected 3 Missing</p>	<p>Client's use of illicit drugs in pregnancy recorded in current pregnancy data form. Never used or no current use Used drugs during pregnancy or denied but suspected use of any of the following drugs: cocaine/crack cocaine, marijuana, methamphetamines, hallucinogens, tranquilizers, inhalants, methadone, barbiturates, heroin/opiates, other Data element missing or unknown</p>	P 7-2
<p>Number of Previous Births</p> <p>1 None 2 1 3 2 or more 4 Missing</p>	<p>Number of previous births (parity) recorded in client's reproductive history data form. No previous pregnancies One previous pregnancy Two or more previous pregnancies Data element missing or unknown</p>	P 6
<p>Previous Poor Pregnancy Outcome</p> <p>0 No 1 Yes</p>	<p>Client's poor pregnancy outcome including previous history of abruptio placenta, low birthweight, intrauterine fetal demise, neonatal death, placenta previa, preterm labor and preterm delivery. Information recorded in client's reproductive history data form. No previous history of any of the above-listed outcomes History of one or more of the above-listed poor pregnancy outcomes</p>	P 6

<p>Previous Pregnancy Health Complications</p> <p>0 No</p> <p>1 Yes</p>	<p>Client's previous pregnancy health complications including history of anemia, hypertension, pyelonephritis and urinary tract infections. Information recorded in client's reproductive history data form.</p> <p>No previous history of any of the above- listed health complications</p> <p>History of one or more of the above-listed health complications</p>	P 6
<p>Complications of Current Pregnancy (Index Child)</p>	<p>Client's complications of current pregnancy (Index Child) including anemia, gestational diabetes, pregnancy induced hypertension, pyelonephritis and urinary tract infections. Information recorded in current pregnancy data form.</p>	7-1
<p>Screening Risk Score</p> <p>1 Low Risk</p> <p>2 Moderate Risk</p> <p>3 High risk</p> <p>4 Missing</p>	<p>Client's risk score from the Screening Instrument</p> <p>Score of less than 12</p> <p>Score range of 13 to 16</p> <p>Score of 16 or higher</p> <p>Data element missing or unknown</p>	P 3-1

<p>Prenatal Care Initiation</p> <p>1 First Trimester</p> <p>2 Second Trimester</p> <p>3 Third Trimester</p> <p>4 Missing</p>	<p>Pregnancy trimester when prenatal care was initiated. Information recorded in current pregnancy data form. Variable calculation based on date of first prenatal care visit and EDC.</p> <p>Initiation of prenatal care before 13 weeks gestation</p> <p>Initiation of prenatal care from 13 to 23 weeks gestation</p> <p>Initiation of prenatal care at 24 or more weeks gestation</p> <p>Data element missing or unknown</p>	<p>P 7-1</p>
<p>Trimester of Entry into BIH</p> <p>1 First Trimester</p> <p>2 Second Trimester</p> <p>3 Third Trimester</p> <p>4 Missing</p>	<p>Pregnancy trimester of entry into BIH calculated by entry date into BIH and EDC. Information recorded in client's overview and current pregnancy data forms.</p> <p>BIH entry occurred before 13 weeks gestation</p> <p>BIH entry occurred from 13 to 23 weeks gestation</p> <p>BIH entry occurred at 24 or more week's gestation</p> <p>Data element missing or unknown</p>	<p>P2, P 7-1</p>
<p>Length of BIH Participation</p> <p>1 < 13</p> <p>2 13-23</p> <p>3 24-44</p> <p>4 > 44</p> <p>5 Missing</p>	<p>Client's length of participation in BIH calculated from date of entry into BIH to date of delivery. Information recorded in client's overview and birth outcome data forms.</p> <p>Length of participation in BIH of less than 13 weeks</p> <p>Length of participation in BIH between 13 and 23 weeks</p> <p>Length of participation in BIH between 24 to 44 weeks</p> <p>Length of participation in BIH of more than 44 weeks</p> <p>Data element missing or unknown</p>	<p>P 2, P 16</p>

<p>Pregnancy Outcome</p> <p>Live birth</p>	<p>Pregnancy outcome documented in birth outcome data form including a live birth, neonatal death, fetal death, spontaneous abortion or therapeutic abortion. Only singleton live births were included</p>	<p>P 16</p>
<p>Birthweight</p> <p>1 LBW 2 NBW 3 Missing</p>	<p>Data recorded in birth outcome data form. Birthweight was collected in pounds and ounces or in grams. When the former occurred, the BIH-MIS system automatically converted to grams. Low birthweight (less than 2,500 grams) Normal birthweight (equal to or greater than 2,500 grams) Data element missing or unknown</p>	<p>P 16</p>
<p>Gestational Age</p> <p>1 < 37 weeks 2 ≥ 37 weeks</p>	<p>Variable calculated on EDC (expected day of confinement) when available or LMP (day of last menstrual period) when EDC was not available, and delivery date. Information recorded in the current pregnancy and birth outcome data forms. Gestational age of less than 37 weeks Gestational age of 37 or more weeks</p>	<p>P 7-1, P 16</p>

APPENDIX C

**Approval from the Committee on the Protection of Human Subjects
San Diego State University**



Committee on Protection
of Human Subjects
San Diego State University
5500 Campanile Drive
San Diego CA 92182-1643

(619) 594-6622 FAX: (619) 594-4109

July 15, 1996

Winnie O. Willis
Graduate School of Public Health
San Diego State University

Attn: Clara Eder

Study: 96-07-232EF
Title: *Black Infant Health Evaluation Project (Phase I)*
Subject: Terms of Exemption

Dear Professor Willis:

The project referenced above has been exempted from review based on category number four of the federal regulation. The category of your approval applies only to the use of existing data. Please note that when using existing data, the federal regulations require that the information obtained be recorded so that subjects cannot be identified, either directly or through identifiers linked to the subjects. This project is approved to occur between July 15, 1996 and July 15, 1998.

Sincerely

Research Services Coordinator

c: Director, Development Services, SDSU Foundation

DEPARTMENT OF HEALTH SERVICES

714/744 P STREET
P.O. BOX 942732
SACRAMENTO, CA 94234-7320

(916)654-0596



February 3, 1998

Committee on Protection of Human Subjects
Office of Research Administration
Graduate Division and Research
San Diego State University
5500 Campanilla Drive
San Diego, CA 92182

To Whom It May Concern:

The California State Department of Health Services, Maternal and Child Health (MCH) Branch, has contracted with San Diego State University (SDSU)/Graduate School of Public Health to work collaboratively with us on the evaluation of the Black Infant Health (BIH) Program from July 1, 1996 – June 30, 1999. Dr. Winnie O. Willis is the SDSU project director for the BIH Evaluation Project. The state MCH Branch agrees to release client level data without personal identifiers to SDSU/BIH Evaluation Project. Data for clients served by the BIH Program from July 1, 1996 – June 30, 1999 shall be released to SDSU/BIH to be used for the purpose of evaluating the BIH Program.

Sincerely,

Mary J. Nelson, Ph.D., M.P.H., Chief
Office of Program Data and Evaluation
Epidemiology and Evaluation Section
Maternal and Child Health Branch

cc: Winnie O. Willis
Project Director
SDSU/Graduate School of Public Health
Black Infant Health Project
6506 Alvarado Road, Suite 112
San Diego, CA 92120

Graduate School of Public Health
Black Infant Health Evaluation Project
6505 Alvarado Road, Suite 202H
San Diego CA 92120

(619) 594-5871 Fax: (619) 594-4570

February 3, 1998

Committee on Protection of Human Subjects
University of San Diego
5998 Alcalá Park
San Diego, CA 92110-2492

To Whom it May Concern:

Clara Eder is the San Diego State University, Black Infant Health Evaluation Project's manager. I strongly support her efforts to complement the project's overall evaluation efforts by conducting a nested case-control study on the project's data as her doctoral dissertation.

Ms. Eder has my permission to use the aggregate of clients enrolled in the sixteen California Black Infant Health projects, from July 1996 to June 1998. Data from the California Black Infant Health Management Information System will be available to Ms. Eder for the purpose of conducting her study. Data will be stripped of all client personal identifiers.

Please do not hesitate to contact me if you have any questions or if I you need additional information.

Sincerely,

Winnie O. Willis, R.N., Sc.D.
Professor
Graduate School of Public Health
San Diego State University
Black Infant Health Evaluation Project
Project Director

August 3, 1998

Winnie O. Willis
Graduate School of Public Health
San Diego State University

Study #: 96-07-232EF
Title: *Black Infant Health Evaluation Project (Phase I)*
Subject: Modification Approval

Attn: Clara Eder

Dear Professor Willis:

The Committee on Protection of Human Subjects approved your request to modify the above referenced protocol on August 3, 1998. This approval authorizes a continuation of your project through June 30, 1999, as well as Suzanne Lindsay's involvement in the research project.

If you have questions regarding the review of the modifications noted, please contact the CPHS office at 594-6622.

Sincerely,

Camille Nebeker
Research Services Coordinator

Copy to: Director, Development Services, SDSU Foundation

APPENDIX D

**Approval from the Committee on the Protection of Human Subjects
University of San Diego**



University of San Diego

Committee on the Protection of Human Subjects

Name

April 2, 1998
Date

Dear Researcher/Faculty Advisor:

Enclosed is a copy of your proposal approved by the Committee for Protection of Human Subjects. This research project is approved for a period of one year. At the conclusion of the research, the researcher must complete a brief summary report. (Please see CPHS policy in the Faculty/ Administrators Handbook.) A copy of the summary report form is enclosed.

If you continue your research beyond the one-year approval period, you must submit this report **along with Forms A and, for expedited reviews, Form B. Please note that you must submit this request one to two months before the anniversary date of the original approval so that we can renew our approval before it expires.**

We will send you a letter during the tenth month of your research project approval period requesting your summary report or continuation approval request.

Also enclosed is a Change of Address form you may use to keep us informed of changes in the address of either the researcher or the faculty advisor.

We appreciate your cooperation in these matters. Thank you.

Sincerely,

Gary Schneider, Chair
Committee for Protection of Human Subjects